

Connecting via Winsock to Dialog

Logging in to Dialog

Trying 31060000009999...Open

DIALOG INFORMATION SERVICES

PLEASE LOGON:

ENTER PASSWORD:

Welcome to DIALOG

Dialog level 05.31.00D

Last logoff: 19apr11 11:43:04

Logon file405 19apr11 12:34:18

DETAIL set on

HILIGHT set on as '*****'

COST = SHORT.

MEDIABAB is set ON as an alias for 155, 347, 144, 35, 5, 74, 71, 357, 6, 351, 24, 136, 399, 315, 358, 73, 34, 434

FISH is set ON as an alias for 10, 143, 203, 50, 28, 35, 351, 24, 136, 44, 399, 78

NUTRACEUT is set ON as an alias for 79, 164, 91, 53, 51, 351, 399, 467, 149

MEDBIOFT is set ON as an alias for 349, 444, 457

* * *

SYSTEM:HOME

Cost is in DialUnits

Menu System II: D2 version 1.8.0 term=ASCII

*** DIALOG HOMEBASE(SM) Main Menu ***

Information:

1. Announcements (new files, reloads, etc.)
2. Database, Rates, & Command Descriptions
3. Help in Choosing Databases for Your Topic
4. Customer Services (telephone assistance, training, seminars, etc.)
5. Product Descriptions

Connections:

6. DIALOG(R) Document Delivery
7. Data Star(R)

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/H = Help

/L = Logoff

/NOMENU = Command Mode

Enter an option number to view information or to connect to an online service. Enter a BEGIN command plus a file number to search a database (e.g., B1 for ERIC).

? b mediobab

>>> 358 does not exist

>>>1 of the specified files is not available

19apr11 12:34:25 User226352 Session D1308.1

\$0.00 Estimated cost FileHomeBase

\$0.05 TELNET

\$0.05 Estimated cost this search

\$0.05 Estimated total session cost 0.263 DialUnits

SYSTEM:OS - DIALOG OneSearch
 File 155:MEDLINE(R) 1950-2011/Apr 15
 (c) format only 2011 Dialog
 *File 155: Medline has been reloaded with the 2011 MeSH thesaurus.
 File 347:JAPIO Dec 1976-2010/Dec(Updated 110323)
 (c) 2011 JPO & JAPIO
 File 144:Pascal 1973-2011/Apr W2
 (c) 2011 INIST/CNRS
 File 35:Dissertation Abs Online 1861-2011/Mar
 (c) 2011 ProQuest Info&Learning
 File 5:Biosis Previews(R) 1926-2011/Apr W2
 (c) 2011 The Thomson Corporation
 File 74:Int.Pharm.Abs 1970-2011/Apr B2
 (c) 2011 The Thomson Corporation
 File 71:ELSEVIER BIOBASE 1994-2011/Apr W3
 (c) 2011 Elsevier B.V.
 File 357:Derwent Biotech Res. _1982-2011/Nov W4
 (c) 2011 Thomson Reuters
 *File 357: This file will no longer be produced after 12/31/2010. For more information, see HELP NEWS 357.
 File 6:NTIS 1964-2011/Apr W4
 (c) 2011 NTIS, Intl Cpyrght All Rights Res
 File 351:Derwent WPI 1963-2011/UD=201125
 (c) 2011 Thomson Reuters
 File 24:CSA Life Sciences Abstracts 1966-2011/Mar
 (c) 2011 CSA.
 File 136:BioEngineering Abstracts 1966-2007/Jan
 (c) 2007 CSA.
 *File 136: This file is closed.
 File 399:CA SEARCH(R) 1967-2010/UD=15417
 (c) 2011 American Chemical Society
 *File 399: Use is subject to the terms of your user/customer agreement. IPCR/8 classification codes now searchable as IC=. See HELP NEWSIPCR.
 File 315:ChemEng & Biotec Abs 1970-2011/May
 (c) 2011 DECHEMA
 *File 315: December 2007 - the reloaded database is now online. Please consult the updated Bluesheet for details on new and changed fields.
 File 73:EMBASE 1974-2011/Apr 19
 (c) 2011 Elsevier B.V.
 *File 73: The 2011 Thesaurus has been installed with UD20110407.
 File 34:SciSearch(R) Cited Ref Sci 1990-2011/Apr W2
 (c) 2011 The Thomson Corp
 File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
 (c) 2006 The Thomson Corp

Set Items Description

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? s W135 and (meningococcal or meningitidis or neisseria) and conjugate

155: MEDLINE(R)_1950-2011/Apr 15
 351 W135
 31353 CONJUGATE
 8766 MENINGITIDIS
 11175 MENINGOCOCCAL
 19779 NEISSERIA
 72 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND CONJUGATE

347: JAPIO_Dec 1976-2010/Dec(Updated 110323)
 3 W135

20 MENINGOCOCCAL
 46 MENINGITIDIS
 68 NEISSERIA
 9446 CONJUGATE
 1 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

144: Pascal_1973-2011/Apr W2
 186 W135
 23856 CONJUGATE
 3425 MENINGOCOCCAL
 4609 MENINGITIDIS
 9934 NEISSERIA
 24 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

35: Dissertation Abs Online_1861-2011/Mar
 3 W135
 82 MENINGOCOCCAL
 173 MENINGITIDIS
 510 NEISSERIA
 4744 CONJUGATE
 0 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

5: Biosis Previews(R)_1926-2011/Apr W2
 260 W135
 34350 CONJUGATE
 5968 MENINGOCOCCAL
 8700 MENINGITIDIS
 21007 NEISSERIA
 38 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

74: Int.Pharm.Abs_1970-2011/Apr B2
 8 W135
 116 MENINGITIDIS
 375 MENINGOCOCCAL
 342 NEISSERIA
 1578 CONJUGATE
 5 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

71: ELSEVIER BIOBASE_1994-2011/Apr W3
 155 W135
 11125 CONJUGATE
 2333 MENINGOCOCCAL
 2686 MENINGITIDIS
 4755 NEISSERIA
 30 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

357: Derwent Biotech Res.___1982-2011/Nov W4
 27 W135
 218 MENINGOCOCCAL
 634 MENINGITIDIS
 1162 NEISSERIA
 5360 CONJUGATE
 10 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

6: NTIS_1964-2011/Apr W4

5 W135
 199 MENINGOCOCCAL
 318 MENINGITIDIS
 457 NEISSERIA
 2648 CONJUGATE
 0 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

351: Derwent WPI_1963-2011/UD=201125
 88 W135
 390 MENINGOCOCCAL
 979 MENINGITIDIS
 2261 NEISSERIA
 42178 CONJUGATE
 48 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

24: CSA Life Sciences Abstracts_1966-2011/Mar
 174 W135
 10358 CONJUGATE
 2962 MENINGOCOCCAL
 4582 MENINGITIDIS
 8899 NEISSERIA
 29 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

136: BioEngineering Abstracts_1966-2007/Jan
 2 W135
 6 MENINGOCOCCAL
 7 MENINGITIDIS
 16 NEISSERIA
 683 CONJUGATE
 0 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

399: CA SEARCH(R)_1967-2010/UD=15417
 46 W135
 1270 MENINGOCOCCAL
 5445 MENINGITIDIS
 10662 NEISSERIA
 48529 CONJUGATE
 6 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

315: ChemEng & Biotec Abs_1970-2011/May
 1 W135
 14 MENINGOCOCCAL
 34 MENINGITIDIS
 55 NEISSERIA
 624 CONJUGATE
 0 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE

73: EMBASE_1974-2011/Apr 19
 385 W135
 37047 CONJUGATE
 8430 MENINGOCOCCAL
 11585 MENINGITIDIS
 24752 NEISSERIA
 77 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
 CONJUGATE


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34: SciSearch(R) Cited Ref Sci_1990-2011/Apr W2
    261 W135
    6737 MENINGITIDIS
    5919 MENINGOCOCCAL
    12773 NEISSERIA
    57766 CONJUGATE
    64 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
      CONJUGATE

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
    18 W135
    786 MENINGITIDIS
    1946 MENINGOCOCCAL
    3181 NEISSERIA
    6092 CONJUGATE
    0 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
      CONJUGATE

TOTAL: FILES 155,347,144 and ...
    1973 W135
    44732 MENINGOCOCCAL
    56203 MENINGITIDIS
    120613 NEISSERIA
    327737 CONJUGATE
S1    404 W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA) AND
      CONJUGATE

? rd s1

>>>Duplicate detection is not supported for File 347.

>>>Duplicate detection is not supported for File 351.

>>>Records from unsupported files will be retained in the RD set.
    S2    177 RD S1 (unique items)
? s s2 not PY>2003

155: MEDLINE(R)_1950-2011/Apr 15
    72 S2
    5138264 PY>2003
    20 S2 NOT PY>2003

347: JAPIO_Dec 1976-2010/Dec(Updated 110323)
    1 S2
    2281569 PY>2003
    0 S2 NOT PY>2003

144: Pascal_1973-2011/Apr W2
    3 S2
    3436769 PY>2003
    0 S2 NOT PY>2003

35: Dissertation Abs Online_1861-2011/Mar
    0 S2
    449979 PY>2003
    0 S2 NOT PY>2003

5: Biosis Previews(R)_1926-2011/Apr W2
    10 S2
    4375765 PY>2003
    3 S2 NOT PY>2003

74: Int.Pharm.Abs_1970-2011/Apr B2

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143785  PY>2003
        0  S2 NOT PY>2003

71: ELSEVIER BIOBASE_1994-2011/Apr W3
        1  S2
2389288 PY>2003
        0  S2 NOT PY>2003

357: Derwent Biotech Res.__1982-2011/Nov W4
        10 S2
142766  PY>2003
        1  S2 NOT PY>2003

        6: NTIS_1964-2011/Apr W4
        0  S2
173840  PY>2003
        0  S2 NOT PY>2003

351: Derwent WPI_1963-2011/UD=201125
Processing
        48  S2
8973478 PY>2003
        1  S2 NOT PY>2003

        24: CSA Life Sciences Abstracts_1966-2011/Mar
        2  S2
1585757 PY>2003
        1  S2 NOT PY>2003

136: BioEngineering Abstracts_1966-2007/Jan
        0  S2
24064   PY>2003
        0  S2 NOT PY>2003

399: CA SEARCH(R)_1967-2010/UD=15417
        1  S2
7462061 PY>2003
        0  S2 NOT PY>2003

315: ChemEng & Biotec Abs_1970-2011/May
        0  S2
70385   PY>2003
        0  S2 NOT PY>2003

        73: EMBASE_1974-2011/Apr 19
        6  S2
5851632 PY>2003
        2  S2 NOT PY>2003

        34: SciSearch(R) Cited Ref Sci_1990-2011/Apr W2
        22 S2
9464597 PY>2003
        7  S2 NOT PY>2003

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
        0  S2
        0  PY>2003
        0  S2 NOT PY>2003

TOTAL: FILES 155,347,144 and ...
        177 S2

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51963999 PY>2003
S3 35 S2 NOT PY>2003
? rd s3

>>>Duplicate detection is not supported for File 347.

>>>Duplicate detection is not supported for File 351.

>>>Records from unsupported files will be retained in the RD set.

S4 35 RD S3 (unique items)
? e au=costantino, paolo

Ref	File	Items	Total	Index-term
E1	24		3	AU=COSTANTINO, P*
E2	399		2	AU=COSTANTINO, PAOLA
	351	13		AU=COSTANTINO, PAOLO
	24	8		AU=COSTANTINO, PAOLO
	399	87		AU=COSTANTINO, PAOLO
E3	-----		108	*AU=COSTANTINO, PAOLO
E4	399		2	AU=COSTANTINO, PAOLO A.
E5	351		2	AU=COSTANTINO, PAOLO, CHIRON S.P.A., VIA FIORENTI
E6	351		2	AU=COSTANTINO, PAOLO, CHIRON S.R.L., VIA FIORENTI
E7	351		1	AU=COSTANTINO, PAOLO, CHIRON SRL
E8	351		1	AU=COSTANTINO, PAOLO, COLLE VAL DIELSA, IT
E9	351		2	AU=COSTANTINO, PAOLO, IT
E10	351		2	AU=COSTANTINO, PAOLO, NOVARTIS VACCINES AND DIAGN
E11	351		1	AU=COSTANTINO, PAOLO, NOVARTIS VACCINES AND DIAGO
E12	351		1	AU=COSTANTINO, PAOLO, NOVARTIS VACCINES, AND DIAG

Enter P or PAGE for more
? s e2 and e3

155: MEDLINE(R)_1950-2011/Apr 15
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

347: JAPIO_Dec 1976-2010/Dec(Updated 110323)
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

144: Pascal_1973-2011/Apr W2
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

35: Dissertation Abs Online_1861-2011/Mar
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

5: Biosis Previews(R)_1926-2011/Apr W2
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

74: Int.Pharm.Abs_1970-2011/Apr B2

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0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

71: ELSEVIER BIOBASE_1994-2011/Apr W3
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

357: Derwent Biotech Res.__1982-2011/Nov W4
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

6: NTIS_1964-2011/Apr W4
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

351: Derwent WPI_1963-2011/UD=201125
0 AU=COSTANTINO, PAOLA
13 AU=COSTANTINO, PAOLO
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

24: CSA Life Sciences Abstracts_1966-2011/Mar
0 AU=COSTANTINO, PAOLA
8 AU=COSTANTINO, PAOLO
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

136: BioEngineering Abstracts_1966-2007/Jan
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

399: CA SEARCH(R)_1967-2010/UD=15417
2 AU=COSTANTINO, PAOLA
87 AU=COSTANTINO, PAOLO
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

315: ChemEng & Biotec Abs_1970-2011/May
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

73: EMBASE_1974-2011/Apr 19
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

34: SciSearch(R) Cited Ref Sci_1990-2011/Apr W2
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
0 AU=COSTANTINO, PAOLO
0 AU=COSTANTINO, PAOLA
0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'

TOTAL: FILES 155,347,144 and ...
2 AU=COSTANTINO, PAOLA
108 AU=COSTANTINO, PAOLO

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S5 0 AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'
 ? e au=berti, francesco

Ref	File	Items	Total	Index-term
E1	351		2	AU=BERTI, FILIPPO
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	399	3		AU=BERTI, FRANCESCA
E2	-----		4	AU=BERTI, FRANCESCA
	351	12		AU=BERTI, FRANCESCO
	24	6		AU=BERTI, FRANCESCO
	399	36		AU=BERTI, FRANCESCO
E3	-----		54	*AU=BERTI, FRANCESCO
E4	351		1	AU=BERTI, FRANCESCO, CHIRON S.R.L., VIA FIORENTIN
E5	351		1	AU=BERTI, FRANCESCO, CHIRON VACCINES
	351	3		AU=BERTI, FRANCO
	24	1		AU=BERTI, FRANCO
	399	5		AU=BERTI, FRANCO
E6	-----		9	AU=BERTI, FRANCO
E7	351		1	AU=BERTI, FRANCO, SAN DONATO MILANESE, IT
E8	351		1	AU=BERTI, FRANCO, VIA ISONZO, 9, I-20090 BUCCINAS
E9	351		1	AU=BERTI, FRANCO, VIA TRIESTE, 16/A, I-20097 SAN
E10	351		1	AU=BERTI, FRANCO, VIALE VALGANNA 84, I-21100 VARE
E11	351		2	AU=BERTI, FURIO
E12	351		1	AU=BERTI, FURIO, TORINO, IT

Enter P or PAGE for more
 ? s e2 or e3

155: MEDLINE(R)_1950-2011/Apr 15
 0 AU=BERTI, FRANCESCO
 0 AU=BERTI, FRANCESCA
 0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

347: JAPIO_Dec 1976-2010/Dec(Updated 110323)
 0 AU=BERTI, FRANCESCO
 0 AU=BERTI, FRANCESCA
 0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

144: Pascal_1973-2011/Apr W2
 0 AU=BERTI, FRANCESCO
 0 AU=BERTI, FRANCESCA
 0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

35: Dissertation Abs Online_1861-2011/Mar
 0 AU=BERTI, FRANCESCO
 0 AU=BERTI, FRANCESCA
 0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

5: Biosis Previews(R)_1926-2011/Apr W2
 0 AU=BERTI, FRANCESCO
 0 AU=BERTI, FRANCESCA
 0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

74: Int.Pharm.Abs_1970-2011/Apr B2
 0 AU=BERTI, FRANCESCO
 0 AU=BERTI, FRANCESCA
 0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

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71: ELSEVIER BIOBASE_1994-2011/Apr W3
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

357: Derwent Biotech Res.___1982-2011/Nov W4
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

6: NTIS_1964-2011/Apr W4
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

351: Derwent WPI_1963-2011/UD=201125
    0 AU=BERTI, FRANCESCA
    12 AU=BERTI, FRANCESCO
    12 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

24: CSA Life Sciences Abstracts_1966-2011/Mar
    1 AU=BERTI, FRANCESCA
    6 AU=BERTI, FRANCESCO
    7 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

136: BioEngineering Abstracts_1966-2007/Jan
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    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

399: CA SEARCH(R)_1967-2010/UD=15417
    3 AU=BERTI, FRANCESCA
    36 AU=BERTI, FRANCESCO
    39 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

315: ChemEng & Biotec Abs_1970-2011/May
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

73: EMBASE_1974-2011/Apr 19
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

34: SciSearch(R) Cited Ref Sci_1990-2011/Apr W2
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
    0 AU=BERTI, FRANCESCO
    0 AU=BERTI, FRANCESCA
    0 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'

TOTAL: FILES 155,347,144 and ...
      4 AU=BERTI, FRANCESCA
     54 AU=BERTI, FRANCESCO
    S6 58 AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'
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Set   File      Items  Description

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	24	29	
	136	0	
	399	6	
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	73	77	
	34	64	
	434	0	
S1	404	W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA)	
		AND CONJUGATE	
	155	72	
	347	1	
	144	3	
	35	0	
	5	10	
	74	1	
	71	1	
	357	10	
	6	0	
	351	48	
	24	2	
	136	0	
	399	1	
	315	0	
	73	6	
	34	22	
	434	0	
S2	177	RD S1 (unique items)	
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	347	0	
	144	0	
	35	0	
	5	3	
	74	0	
	71	0	
	357	1	
	6	0	
	351	1	
	24	1	
	136	0	
	399	0	
	315	0	
	73	2	
	34	7	
	434	0	
S3	35	S2 NOT PY>2003	
	155	20	
	347	0	
	144	0	
	35	0	
	5	3	
	74	0	
	71	0	

	357	1	
	6	0	
	351	1	
	24	1	
	136	0	
	399	0	
	315	0	
	73	2	
	34	7	
	434	0	
S4		35	RD S3 (unique items)
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	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	0	
	24	0	
	136	0	
	399	0	
	315	0	
	73	0	
	34	0	
	434	0	
S5		0	AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	12	
	24	7	
	136	0	
	399	39	
	315	0	
	73	0	
	34	0	
	434	0	
S6		58	AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'
	? e au=costantino, paolo		

Ref	File	Items	Total	Index-term
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E2	399		2	AU=COSTANTINO, PAOLA
	351	13		AU=COSTANTINO, PAOLO
	24	8		AU=COSTANTINO, PAOLO
	399	87		AU=COSTANTINO, PAOLO
E3	-----		108	*AU=COSTANTINO, PAOLO
E4	399		2	AU=COSTANTINO, PAOLO A.
E5	351		2	AU=COSTANTINO, PAOLO, CHIRON S.P.A., VIA FIORENTI
E6	351		2	AU=COSTANTINO, PAOLO, CHIRON S.R.L., VIA FIORENTI
E7	351		1	AU=COSTANTINO, PAOLO, CHIRON SRL

E8	351	1	AU=COSTANTINO, PAOLO, COLLE VAL DIELSA, IT
E9	351	2	AU=COSTANTINO, PAOLO, IT
E10	351	2	AU=COSTANTINO, PAOLO, NOVARTIS VACCINES AND DIAGN
E11	351	1	AU=COSTANTINO, PAOLO, NOVARTIS VACCINES AND DIAGO
E12	351	1	AU=COSTANTINO, PAOLO, NOVARTIS VACCINES, AND DIAG

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? s e2 or e3

155: MEDLINE(R)_1950-2011/Apr 15
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347: JAPIO_Dec 1976-2010/Dec(Updated 110323)
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144: Pascal_1973-2011/Apr W2
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35: Dissertation Abs Online_1861-2011/Mar
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357: Derwent Biotech Res.__1982-2011/Nov W4
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24: CSA Life Sciences Abstracts_1966-2011/Mar

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155: MEDLINE(R)_1950-2011/Apr 15

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347: JAPIO_Dec 1976-2010/Dec(Updated 110323)

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144: Pascal_1973-2011/Apr W2

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35: Dissertation Abs Online_1861-2011/Mar

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5: Biosis Previews(R)_1926-2011/Apr W2

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74: Int.Pharm.Abs_1970-2011/Apr B2

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71: ELSEVIER BIOBASE_1994-2011/Apr W3

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357: Derwent Biotech Res.___1982-2011/Nov W4

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351: Derwent WPI_1963-2011/UD=201125

12 S6
13 S7
19 S6 OR S7

24: CSA Life Sciences Abstracts_1966-2011/Mar

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13 S6 OR S7

136: BioEngineering Abstracts_1966-2007/Jan

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399: CA SEARCH(R)_1967-2010/UD=15417

39 S6
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315: ChemEng & Biotec Abs_1970-2011/May

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73: EMBASE_1974-2011/Apr 19

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34: SciSearch(R) Cited Ref Sci_1990-2011/Apr W2

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434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
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110 S7
S8 145 S6 OR S7
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155: MEDLINE(R)_1950-2011/Apr 15
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26700 POLYSACCHARIDE
16074 CAPSULAR
19779 NEISSERIA
8766 MENINGITIDIS
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347: JAPIO_Dec 1976-2010/Dec(Updated 110323)
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144: Pascal_1973-2011/Apr W2
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6743 CAPSULAR
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28778 POLYSACCHARIDE
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35: Dissertation Abs Online_1861-2011/Mar
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5: Biosis Previews(R)_1926-2011/Apr W2
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74: Int.Pharm.Abs_1970-2011/Apr B2
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342 NEISSERIA

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1134 POLYSACCHARIDE
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71: ELSEVIER BIOBASE_1994-2011/Apr W3
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357: Derwent Biotech Res.___1982-2011/Nov W4
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351: Derwent WPI_1963-2011/UD=201125
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24: CSA Life Sciences Abstracts_1966-2011/Mar
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136: BioEngineering Abstracts_1966-2007/Jan
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399: CA SEARCH(R)_1967-2010/UD=15417
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73: EMBASE_1974-2011/Apr 19

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34: SciSearch(R) Cited Ref Sci_1990-2011/Apr W2

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434: SciSearch(R) Cited Ref Sci_1974-1989/Dec

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145 S8
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120613 NEISSERIA
56203 MENINGITIDIS
S9 61 S8 AND (CAPSULAR OR POLYSACCHARIDE OR NEISSERIA OR
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? rd s9

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>>>Duplicate detection is not supported for File 351.

>>>Records from unsupported files will be retained in the RD set.

S10 57 RD S9 (unique items)
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10/7/1 (Item 1 from file: 351)
DIALOG(R)File 351:Derwent WPI

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0021027583

WPI ACC NO: 2010-M58148/201066

Immunogenic composition for raising an immune response in a mammal comprises meningococcal lipooligosaccharide (LOS) and a pneumococcal serotype 14 *****capsular***** saccharide (CS14)

Patent Assignee: NOVARTIS AG (NOVS)

Inventor: COSTANTINO P

Patent Family (2 patents, 113 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
WO 2010109325	A2	20100930	WO 2010IB735	A	20100324	201066 B
WO 2010109325	A3	20110120	WO 2010IB735	A	20100324	201107 E

Priority Applications (no., kind, date): US 2009162996 P 20090324

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
WO 2010109325	A2	EN	47	4		

National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TH TJ TM TN TR TT TZ UA UG US UZ
VC VN ZA ZM ZW

WO 2010109325 A3 EN

National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
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RO RS RU SC SD SE SG SK SL SM ST SV SY TH TJ TM TN TR TT TZ UA UG US UZ
VC VN ZA ZM ZW

Alerting Abstract WO A2

NOVELTY - Immunogenic composition comprises a meningococcal lipooligosaccharide (LOS) and a pneumococcal serotype 14 *****capsular***** saccharide (CS14), where the LOS and/or the CS14 do(es) not include a Gal-betal-4 N-acetylglucosamine (GlcNAc)-betal-3Gal-betal-4Glc tetrasaccharide.

DESCRIPTION - INDEPENDENT CLAIMS are:

1. an unadjuvanted immunogenic composition comprising LOS and a CS14, where the LOS and the CS14 both include a Gal-betal-4GlcNAc-betal-3Gal-betal-4Glc tetrasaccharide; and
2. a method for raising an immune response in a mammal comprising administering a composition to the mammal.

ACTIVITY - Immunostimulant; Antibacterial; Neuroprotective; Immunosuppressive. No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - The immunogenic composition is useful for raising an immune response in a mammal (claimed) and for treating and preventing diseases caused by ~*****Neisseria***** meningitides ~ and/or ~Streptococcus pneumoniae ~ e.g. bacterial (or, more specifically, meningococcal and/or meningitis, or septicemia).

ADVANTAGE - The composition provides improved combination vaccines for protecting against both meningococcus serogroup B and pneumococcus.

Technology Focus

BIOTECHNOLOGY - Preferred Composition: In the composition, the

tetrasaccharide is present in CS14. It comprises an adjuvant. The LOS is prepared from a meningococcal strain lacking LgtB enzyme activity. The LOS is prepared from a meningococcal strain lacking GalE enzyme activity. The LOS is prepared from a meningococcal strain lacking LgtA and/or LgtE enzyme activity. The LOS lacks the terminal galactose of the Gal-beta1-4GlcNAc-beta1-3Gal-beta1-4Glc tetrasaccharide. The LOS is present within meningococcal outer membrane vesicles. The LOS is conjugated to proteins in the vesicles. The vesicles are prepared from a meningococcus that over-expresses TbpA. The LOS is conjugated to a carrier protein. The conjugation may be via a lipid A portion in the LOS or by a 3-deoxy-d-manno-octulosonic acid (KDO) residue. Alternatively, the immunogenic composition comprises one or more meningococcal polypeptide(s) and a CS14, where (a) the CS14 includes a Gal-beta1-4GlcNAc1-3Gal-beta1-4Glc tetrasaccharide, (b) the meningococcal polypeptide can elicit an immune response that is effective against serogroup B meningococcus, and (c) the composition does not include a meningococcal lipooligosaccharide. The meningococcal polypeptide(s) comprise a factor H binding protein (fHBP). The fHBP comprises an amino acid sequence having at least 85% sequence identity to SEQ ID NO. 1 (not defined) and/or comprising an amino acid sequence consisting of a fragment of at least 7 contiguous amino acids from SEQ ID NO. 1. The fHBP comprises an amino acid sequence having at least 85% sequence identity to SEQ ID NO. 2 (not defined) and/or comprising an amino acid sequence consisting of a fragment of at least 7 contiguous amino acids from SEQ ID NO. 2. The fHBP comprises an amino acid sequence having at least 85% sequence identity to SEQ ID NO. 3 (not defined) and/or comprising an amino acid sequence consisting of a fragment of at least 7 contiguous amino acids from SEQ ID NO. 3. The fHBP is lipidated. The fHBP elicits antibodies which can bind to a meningococcal polypeptide consisting of amino acid sequence SEQ ID NO. 1, 2 or 3. It also comprises a LOS and a CS14, where (a) the LOS and the CS14 both include a Gal-beta1-4GlcNAc-beta1-3Gal-beta1-4Glc tetrasaccharide, (b) the concentration of LOS is less than μ g/ml, and (c) the concentration of CS14 is less than 5 μ g/ml. The CS14 is conjugated to a carrier protein. The carrier protein is CRM197, tetanus toxoid, diphtheria toxoid or ~Haemophilus influenzae ~ protein D. It also comprises a LOS and a pneumococcal polypeptide antigen, where (a) the LOS includes a Gal-beta1-4GlcNAc-beta1-3Gal-beta1-4Glc tetrasaccharide, (b) the pneumococcal polypeptide can elicit an immune response that is effective against serotype 14 pneumococcus, and (c) the composition does not include a CS14. It comprises an aluminum salt adjuvant. The aluminum salt is an aluminum phosphate.

Title Terms/Index Terms/Additional Words: IMMUNOGENIC; COMPOSITION; RAISE; IMMUNE; RESPOND; MAMMAL; COMPRISE; MENINGOCOCCUS; PNEUMOCOCCUS; SEROLOGICAL; CAPSULE; SACCHARIDE

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/02	A	I	F	B	20060101
A61K-0039/09	A	I	L	B	20060101
A61K-0039/095	A	I	L	B	20060101
A61K-0039/295	A	I	L	B	20060101
C07K-0014/315	A	I	L	B	20060101
A61K-0039/02	C	I		B	20060101

ECLA: A61K-039/095, C07K-014/315B

File Segment: CPI

DWPI Class: B04; D16

Manual Codes (CPI/A-M): B04-C02F; B04-E99; B04-N03; B05-B02A3; B14-A01A5; B14-A01B2; B14-C03; B14-G01; B14-N16; B14-S06; B14-S11B1; D05-H07

Original Publication Data by Authority

WIPO

Publication No. WO 2010109325 A2 (Update 201066 B)

Publication Date: 20100930

**COMBINATIONS INCLUDING PNEUMOCOCCAL SEROTYPE 14 SACCHARIDE

COMBINAISONS COMPRENANT UN SACCHARIDE DE PNEUMOCOQUE SEROTYPE 14**

Assignee: ~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basel, CH

Residence: CH Nationality: CH (NOVS)

~(only US)~ COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina, 1,

I-53100 Siena, IT Residence: IT Nationality: IT

Inventor: COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina, 1, I-53100

Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John et al., Carpmaels Ransford, One Southampton Row, London WC1B 5HA, GB

Language: EN (47 pages, 4 drawings)

Application: WO 2010IB735 A 20100324 (Local application)

Priority: US 2009162996 P 20090324

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TH TJ TM TN TR TT TZ UA UG US UZ
VC VN ZA ZM ZW

Original IPC: A61K-39/02(B,I,H,EP,20060101,A,F)

A61K-39/02(B,I,M,98,20060101,C)

Current IPC: A61K-39/02(B,I,H,EP,20060101,A,F)

A61K-39/02(B,I,M,98,20060101,C)

Current ECLA class: A61K-39/095 C07K-14/315B

Original Abstract: Meningococcal lipooligosaccharide and pneumococcal serotype 14 capsular saccharide share an antigen that can cross-react with human tissue. The invention provides various ways of minimising the production of autoreactive antibodies when these two antigens are co-administered.

Le lipo-oligo-saccharide de meningocoque et le saccharide capsulaire de pneumocoque serotype 14 partagent un antigene qui peut presenter une reaction croisee avec un tissu humain. L'invention concerne divers moyens de reduire la production d'anticorps autoreactifs lorsque ces deux antigenes sont co-administres.

Publication No. WO 2010109325 A3 (Update 201107 E)

Publication Date: 20110120

COMBINATIONS INCLUDING PNEUMOCOCCAL SEROTYPE 14 SACCHARIDE

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: COSTANTINO P, IT

Language: EN

Application: WO 2010IB735 A 20100324 (Local application)

Priority: US 2009162996 P 20090324

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TH TJ TM TN TR TT TZ UA UG US UZ
VC VN ZA ZM ZW

Original IPC: A61K-39/02(B,I,H,EP,20060101,A,F)

A61K-39/09(B,I,H,EP,20060101,A,L) A61K-39/095(B,I,H,EP,20060101,A,L)

A61K-39/295(B,I,H,EP,20060101,A,L) C07K-14/315(B,I,H,EP,20060101,A,L)

Current IPC: A61K-39/02(B,I,H,EP,20060101,A,F)

A61K-39/09(B,I,H,EP,20060101,A,L) A61K-39/095(B,I,H,EP,20060101,A,L)

A61K-39/295(B,I,H,EP,20060101,A,L) C07K-14/315(B,I,H,EP,20060101,A,L)

Original Abstract: Meningococcal lipooligosaccharide and pneumococcal serotype 14 capsular saccharide share an antigen that can cross-react with human tissue. The invention provides various ways of minimising the production of autoreactive antibodies when these two antigens are co-administered.

10/7/2 (Item 2 from file: 351)
DIALOG(R)File 351:Derwent WPI
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0020394151

WPI ACC NO: 2010-E89462/201032

Purification of Streptococcus pyogenes carbohydrate useful for the preparation of vaccines involves use of anionic exchange chromatography

Patent Assignee: NOVARTIS AG (NOVS)

Inventor: BERTI F; COSTANTINO P; KABANOVA A; ROMANO M R

Patent Family (1 patents, 124 countries)

Patent

Application

Number	Kind	Date	Number	Kind	Date	Update
WO 2010049806	A1	20100506	WO 2009IB7346	A	20091027	201032 B

Priority Applications (no., kind, date): US 2008108763 P 20081027

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
WO 2010049806	A1	EN	56	15		

National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR OA
BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

Alerting Abstract WO A1

NOVELTY - Purification (m1) of ~Streptococcus pyogenes ~ (group A ~Streptococcus ~ (GAS)) carbohydrate involves use of anionic exchange chromatography.

ACTIVITY - None given.

MECHANISM OF ACTION - Vaccines. Test details are described, but no results given.

USE - For purifying ~Streptococcus pyogenes ~ carbohydrate (claimed) which are used in the preparation of vaccines, and as an antigen for in vitro diagnostic assays in e.g. immunization.

ADVANTAGE - The anionic exchange chromatography provides a good yield (i.e. greater than 70, preferably greater than 75, greater than 80, greater than 85, and greater than 90%) of GAS carbohydrate; and particularly pure GAS carbohydrate preparation. The GAS carbohydrate is often contaminated with hyaluronic acid, which is derived from the GAS *****capsular***** polysaccharide*****, thus anionic exchange chromatography is particularly effective at reducing hyaluronic acid contamination of GAS carbohydrate. This is particularly advantageous when the GAS carbohydrate is intended for use in a vaccine because hyaluronic acid is known to be immunogenic in its own right and induces antibodies that are cross-reactive with human tissue, so its presence in pharmaceutical products is detrimental to health. Anionic exchange chromatography is also particularly effective at reducing protein and nucleic acid contamination of GAS carbohydrate. The purification of GAS carbohydrate is performed under conditions that allow flow through of the saccharide during anionic

exchange chromatography, where impurities bind to the anion exchange matrix while GAS carbohydrate flows straight through the system into the eluant. The use of these conditions simplifies the purification process, as there is no need to use a mobile phase buffer of increasing ionic strength or increasing pH to elute the GAS carbohydrate from the matrix. The method provides a composition comprising a level of hyaluronic acid contamination that is less than 200 (preferably less than 150, more preferably less than 80, most preferably less than 40, especially 20, and particularly less than 10) ng/ml or less than 1 wt.% of hyaluronic acid relative to the weight of GAS carbohydrate; a level of polyrhhamnose contamination that is less than 20 wt.% of polyrhhamnose relative to the weight of GAS carbohydrate; a level of protein contamination that is around 2 wt.% of protein relative to the weight of GAS carbohydrate; and a level of nucleic acid contamination that is less than 1 wt.% of nucleic acid relative to the weight of GAS carbohydrate.

Technology Focus

ORGANIC CHEMISTRY - Preferred Method: The suspension is prepared by treating ~S. pyogenes ~ such that the GAS carbohydrate is released. The GAS carbohydrate is released by reductive acid treatment. The method involves filtration step(s) prior to the anionic exchange chromatography step. The filtration is by orthogonal filtration using 0.65 μ m filter. The method involves at least one ultrafiltration step prior to the anionic exchange chromatography step. The ultrafiltration is by tangential flow filtration using 30 kDa cut-off membrane. The anionic exchange chromatography step is carried out using a Q-resin as anionic exchange matrix. The anionic exchange chromatography step is carried out using anionic exchange matrix resin (1 ml) for every 1 mg of GAS carbohydrate. The anionic exchange chromatography step is performed under conditions that allow flow through of the GAS carbohydrate. The mobile phase buffer for the anionic exchange chromatography comprises alcohol (preferably ethanol) in an amount of 15-25%. The method involves at least one gel filtration step after the anionic exchange chromatography step. The gel filtration step(s) are carried out using a dextran gel as gel filtration matrix (1 ml for every 0.2 mg of GAS carbohydrate); and are performed using the same mobile phase buffer as the anionic exchange chromatography step. The method involves concentrating the GAS carbohydrate after the anionic exchange chromatography step. The concentration step(s) are carried out by tangential flow filtration using a 5 or 10 kDa cut-off membrane. The method involves conjugating the purified GAS carbohydrate to a carrier molecule.

POLYMERS - Preferred Components: The purified GAS carbohydrate has a molecular weight of 10 kDa. The saccharide is partially or fully de-N-acetylated. The starting material is an aqueous suspension of the GAS carbohydrate, further comprising hyaluronic acid and/or polyrhhamnose.

Title Terms/Index Terms/Additional Words: PURIFICATION; STREPTOCOCCUS; PYOGENES; CARBOHYDRATE; USEFUL; PREPARATION; VACCINE; ANION; EXCHANGE; CHROMATOGRAPHY

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/09	A	I	L	B	20060101
B01D-0015/36	A	I	F	B	20060101
B01D-0061/14	A	I	L	B	20060101
C07K-0001/18	A	I	L	B	20060101
C07K-0001/34	A	I	L	B	20060101
C12P-0019/00	A	I	L	B	20060101
A61K-0039/09	C	I	L	B	20100101
B01D-0015/26	C	I	F	B	20100101
B01D-0061/14	C	I	L	B	20100101
C07K-0001/00	C	I	L	B	20100101

C12P-0019/00 C I L B 20100101
ECLA: A61K-039/09A
ICO: K61K-039:555A, K61K-039:60P10, L01D-061:14D

File Segment: CPI; EPI
DWPI Class: B04; D16; J01; S03
Manual Codes (EPI/S-X): S03-E09C5
Manual Codes (CPI/A-M): B04-C02F; B11-B03; B12-K04A; B14-S11; D05-H13;
J01-C; J01-D01A; J01-D04; J01-D07

Original Publication Data by Authority

WIPO

Publication No. WO 2010049806 A1 (Update 201032 B)

Publication Date: 20100506

**PURIFICATION METHOD

PROCEDE DE PURIFICATION**

Assignee: ~(except US)~ NOVARTIS AG, Lichstrasse 35, CH-4056 Basel, CH

Residence: CH Nationality: CH (NOVS)

~(only US)~ COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina, 1,
I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ BERTI, Francesco, Novartis Vaccines, Via Fiorentina, 1,
I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ KABANOVA, Anna, Novartis Vaccines, Via Fiorentina, 1, I-53100
Siena, IT Residence: IT Nationality: RU

~(only US)~ ROMANO, Maria, Rosaria, Novartis Vaccines, Via Fiorentina, 1,
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Inventor: BERTI, Francesco, Novartis Vaccines, Via Fiorentina, 1, I-53100
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KABANOVA, Anna, Novartis Vaccines, Via Fiorentina, 1, I-53100 Siena, IT
Residence: IT Nationality: RU

ROMANO, Maria, Rosaria, Novartis Vaccines, Via Fiorentina, 1, I-53100
Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John et al., Carpmals Ransford, 43-45
Bloomsbury Square, London, WC1A 2RA, GB

Language: EN (56 pages, 15 drawings)

Application: WO 2009IB7346 A 20091027 (Local application)

Priority: US 2008108763 P 20081027

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE
IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR OA BW GH GM KE LS
MW MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: A61K-39/09(B, I, H, EP, 20060101, A, L)

A61K-39/09(B, I, M, 98, 20060101, C) B01D-15/26(B, I, M, 98, 20060101, C)

B01D-15/36(B, I, H, EP, 20060101, A, F) B01D-61/14(B, I, H, EP, 20060101, A, L)

B01D-61/14(B, I, M, 98, 20060101, C) C07K-1/00(B, I, M, 98, 20060101, C)

C07K-1/18(B, I, H, EP, 20060101, A, L) C07K-1/34(B, I, H, EP, 20060101, A, L)

C12P-19/00(B, I, H, EP, 20060101, A, L) C12P-19/00(B, I, M, 98, 20060101, C)

Current IPC: A61K-39/09(B, I, H, EP, 20060101, 20100506, A, L)

A61K-39/09(B, I, H, EP, 20100101, 20100506, C, L)

B01D-15/26(B, I, H, EP, 20100101, 20100506, C, F)

B01D-15/36(B, I, H, EP, 20060101, 20100506, A, F)

B01D-61/14(B, I, H, EP, 20060101, 20100506, A, L)

B01D-61/14(B,I,H,EP,20100101,20100506,C,L)
C07K-1/00(B,I,H,EP,20100101,20100506,C,L)
C07K-1/18(B,I,H,EP,20060101,20100506,A,L)
C07K-1/34(B,I,H,EP,20060101,20100506,A,L)
C12P-19/00(B,I,H,EP,20060101,20100506,A,L)
C12P-19/00(B,I,H,EP,20100101,20100506,C,L)

Current ECLA class: A61K-39/09A

Current ECLA ICO class: K61K-39:555A K61K-39:60P10 L01D-61:14D

Original Abstract: A process for purifying a Streptococcus pyogenes GAS carbohydrate comprising a step of anionic exchange chromatography. The process provides a good yield of GAS carbohydrate. The saccharides of the invention have low levels of hyaluronic acid, protein and nucleic acid contamination.

La presente invention concerne un procede permettant la purification du glucide Streptococcus pyogenes (GAS), comprenant une etape de chromatographie par echange anionique. Le procede permet d'obtenir un bon rendement de glucide GAS. Les saccharides selon l'invention presentent de faibles niveaux de contamination par l'acide hyaluronique, par des proteines et par l'acide nucleique.

10/7/3 (Item 3 from file: 351)
DIALOG(R)File 351:Derwent WPI
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0019961320 - Drawing available

WPI ACC NO: 2009-S40218/201008

Production of conjugate of ****capsular**** saccharide of Salmonella typhi e.g. for raising immune response, by combining linker, carbodiimide and carrier protein, removing excess linker, and reacting with product of saccharide with carbodiimide

Patent Assignee: NOVARTIS AG (NOVS)

Inventor: BERTI F; COSTANTINO P; MICOLI F

Patent Family (5 patents, 125 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
WO 2009150543	A2	20091217	WO 2009IB6285	A	20090612	201008 B
WO 2009150543	A3	20100506	WO 2009IB6285	A	20090612	201030 E
AU 2009259017	A1	20091217	AU 2009259017	A	20090612	201109 E
CA 2727565	A1	20091217	CA 2727565	A	20090612	201120 E
			WO 2009IB6285	A	20090612	
			CA 2727565	A	20101210	
EP 2303333	A2	20110406	EP 2009762071	A	20090612	201124 E
			WO 2009IB6285	A	20090612	

Priority Applications (no., kind, date): GB 200810894 A 20080613

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
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WO 2009150543	A2	EN	42	18		
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National Designated States,Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

Regional Designated States,Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW
GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

WO 2009150543	A3	EN				
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National Designated States,Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD

GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW
GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

AU 2009259017 A1 EN Based on OPI patent WO 2009150543

CA 2727565 A1 EN PCT Application WO 2009IB6285

PCT national entry CA 2727565

Based on OPI patent WO 2009150543

EP 2303333 A2 EN PCT Application WO 2009IB6285

Based on OPI patent WO 2009150543

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR AL
BA RS

Alerting Abstract WO A2

NOVELTY - Production of conjugate of ****capsular**** saccharide of
~Salmonella typhi ~ (Vi) comprises simultaneously combining a linker,
carbodiimide and carrier protein; removing any excess linker from the
product of first step; reacting Vi with carbodiimide; and reacting the
product of second step with the product of third step.

DESCRIPTION - INDEPENDENT CLAIMS are included for:

- 1.a conjugate comprising Vi linked to cross reacting material 197
(CRM197);
- 2.a pharmaceutical composition comprising the conjugate in combination
with a carrier; and
- 3.a method for derivatizing a Vi saccharide comprising reacting the
saccharide with a carbodiimide at Vi:carbodiimide molar ratio of
greater than 3:1.

ACTIVITY - Immunostimulant; Antipyretic; Antibacterial.

MECHANISM OF ACTION - Vaccine.

USE - The method is for production of conjugate of Vi for raising an
immune response in a mammal (claimed) or for use in medicine for raising an
antibody response in a mammal, and for manufacture of medicament for
preventing or treating typhoid fever in a mammal. The mammal is preferably
a human. Balb/c female mice were divided in 14 groups of eight mice each
and were subcutaneously immunized with 2.5 μ g of Vi, Vi-conjugate or
physical mixture of Vi and ADH-derivatized carrier protein. Only groups 13
and 14 received 10 μ g of immunization dose. Three injections of 200 μ l
each were given every two weeks, with bleedings two weeks after each
immunization. Groups 9-12 received alum as adjuvant, while the adjuvant for
groups 13 and 14 was complete Freund's adjuvant (first injection) and
incomplete Freund's adjuvant (second and third injections). An anti-Vi
antibody values for groups 1-14 were respectively (T14;T28;T42): (3.3;-
1.03;- 1.54), (- 3.4;- 1.94;- 0.04), (5.0;- 0.14;0.03), (1.1;2.51;1.31),
(53.7;242.20;191.53), (95.4;245.39;225.66), (75.5;170.20;160.49),
(58.2;126.23;126.20), (56.4;162.52;98.58), (58.7;98.92;93.22),
(44.6;191.81;151.56), (68.1;202.99;180.09), (65.3;271.48;264.39), and
(134.5;202.51;234.78).

DESCRIPTION OF DRAWINGS - The drawing shows a graph of size-exclusion
chromatography analysis of Vi-TT(ADH).

Technology Focus

BIOTECHNOLOGY - Preferred Component: The carrier protein is CRM197 or
tetanus toxoid (TT).

INORGANIC CHEMISTRY - Preferred Component: The composition comprises

saline and optionally adjuvant.

ORGANIC CHEMISTRY - Preferred Component: The carbodiimide is 1-ethyl-3(3-dimethylaminopropyl)carbodiimide. The Vi:carbodiimide molar ratio is greater than 5:1 (preferably greater than 9:1). Preferred Process: The excess linker is removed by dialysis. The Vi is linked to CRM197 by an adipic acid dihydrazide (ADH) as linker.

Title Terms/Index Terms/Additional Words: PRODUCE; CONJUGATE; CAPSULE; SACCHARIDE; SALMONELLA; TYPHI; RAISE; IMMUNE; RESPOND; COMBINATION; LINK; CARBODIIMIDE; CARRY; PROTEIN; REMOVE; EXCESS; REACT; PRODUCT

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0047/48 A I F B 20060101

A61P-0043/00 A N L B 20060101

A61P-0043/00 A I L B 20060101

A61K-0047/48 C I B 20060101

A61K-0047/48 C I F B 20100101

A61P-0043/00 C N B 20060101

A61P-0043/00 C N L B 20100101

ECLA: A61K-047/48R2D

File Segment: CPI

DWPI Class: B04; B07

Manual Codes (CPI/A-M): B04-C02F; B04-N03; B11-A01A; B14-A01A8; B14-C04;

B14-G01; B14-S11B1

Original Publication Data by Authority

Australia

Publication No. AU 2009259017 A1 (Update 201109 E)

Publication Date: 20091217

Assignee: NOVARTIS AG (NOVS)

Inventor: COSTANTINO P

MICOLI F

BERTI F

Language: EN

Application: AU 2009259017 A 20090612 (Local application)

Priority: GB 200810894 A 20080613

Related Publication: WO 2009150543 A (Based on OPI patent)

Original IPC: A61K-47/48(B,I,H,EP,20060101,20091217,A,F)

A61P-43/00(B,N,H,EP,20060101,20091217,A,L)

Current IPC: A61K-47/48(B,I,H,EP,20060101,20091217,A,F)

A61P-43/00(B,N,H,EP,20060101,20091217,A,L)

Current ECLA class: A61K-47/48R2D

Canada

Publication No. CA 2727565 A1 (Update 201120 E)

Publication Date: 20091217

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: MICOLI F, IT

COSTANTINO P, IT

BERTI F, IT

Language: EN

Application: CA 2727565 A 20090612 (Local application)

WO 2009IB6285 A 20090612 (PCT Application)

CA 2727565 A 20101210 (PCT national entry)

Priority: GB 200810894 A 20080613

Related Publication: WO 2009150543 A (Based on OPI patent)

Original IPC: A61K-47/48(B,I,H,EP,20060101,20110129,A,F)
A61P-43/00(B,N,H,EP,20060101,20110129,A,L)
Current IPC: A61K-47/48(B,I,H,EP,20060101,20110129,A,F)
A61P-43/00(B,N,H,EP,20060101,20110129,A,L)

EPO

Publication No. EP 2303333 A2 (Update 201124 E)

Publication Date: 20110406

CONJUGATED VI SACCHARIDES

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: MICOLI F, IT

COSTANTINO P, IT

BERTI F, IT

Language: EN

Application: EP 2009762071 A 20090612 (Local application)

WO 2009IB6285 A 20090612 (PCT Application)

Priority: GB 200810894 A 20080613

Related Publication: WO 2009150543 A (Based on OPI patent)

Designated States: (Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR AL

BA RS

Original IPC: A61K-47/48(B,I,H,EP,20060101,20100106,A,F)

A61P-43/00(B,I,H,EP,20060101,20100106,A,L)

Current IPC: A61K-47/48(B,I,H,EP,20060101,20100106,A,F)

A61P-43/00(B,I,H,EP,20060101,20100106,A,L)

WIPO

Publication No. WO 2009150543 A2 (Update 201008 B)

Publication Date: 20091217

**CONJUGATED VI SACCHARIDES

CONJUGUES VI DE SACCHARIDES**

Assignee: ~(except US)~ NOVARTIS AG, Lichstrasse 35, CH-4056 Basel, CH

Residence: CH Nationality: CH (NOVS)

~(only US)~ MICOLI, Francesca, Novartis Vaccines, Via Fiorentina 1,

I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina 1,

I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ BERTI, Francesco, Novartis Vaccines, Via Fiorentina 1,

I-53100 Siena, IT Residence: IT Nationality: IT

Inventor: BERTI, Francesco, Novartis Vaccines, Via Fiorentina 1, I-53100

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Residence: IT Nationality: IT

MICOLI, Francesca, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John, Carpmaels Ransford, 43-45 Bloomsbury

Square, London WC1A 2RA, GB

Language: EN (42 pages, 18 drawings)

Application: WO 2009IB6285 A 20090612 (Local application)

Priority: GB 200810894 A 20080613

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH

BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD

GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS

LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT

RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC

VN ZA ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE

IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW

MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: A61K-47/48(B,I,H,EP,20060101,A,F)

A61K-47/48(B,I,M,98,20060101,C) A61P-43/00(B,N,H,EP,20060101,A,L)

A61P-43/00(B,N,M,98,20060101,C)

Current IPC: A61K-47/48(B,I,H,EP,20060101,A,F)
A61K-47/48(B,I,M,98,20060101,C) A61P-43/00(B,N,H,EP,20060101,A,L)
A61P-43/00(B,N,M,98,20060101,C)
Current ECLA class: A61K-47/48R2D
Original Abstract: Two Vi conjugates have been prepared by
carbodiimide-mediated synthesis, using adipic acid dihydrazide
derivatized CRM197 (a non-toxic variant of diphtheria toxin) and
tetanus toxoid, as carrier proteins.
Deux conjugues Vi ont ete prepares par une synthese induite par les
carbodiimides, utilisant la CRM197 derivatisee de dihydrazide d'acide
adipique (un variant non toxique de la toxine de diphterie) et le
toxoides du tetanos, comme proteines-supports.

Publication No. WO 2009150543 A3 (Update 201030 E)
Publication Date: 20100506
CONJUGATED VI SACCHARIDES
Assignee: NOVARTIS AG; CH (NOVS)
Inventor: BERTI F, IT
COSTANTINO P, IT
MICOLI F, IT
Language: EN
Application: WO 2009IB6285 A 20090612 (Local application)
Priority: GB 200810894 A 20080613
Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW
(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE
IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW
MZ NA SD SL SZ TZ UG ZM ZW EA
Original IPC: A61K-47/48(B,I,H,EP,20060101,A,F)
A61K-47/48(B,I,M,98,20060101,C) A61P-43/00(B,N,H,EP,20060101,A,L)
A61P-43/00(B,N,M,98,20060101,C)
Current IPC: A61K-47/48(B,I,H,EP,20060101,20100506,A,F)
A61K-47/48(B,I,H,EP,20100101,20100506,C,F)
A61P-43/00(B,N,H,EP,20060101,20100506,A,L)
A61P-43/00(B,N,H,EP,20100101,20100506,C,L)
Current ECLA class: A61K-47/48R2D
Original Abstract: Two Vi conjugates have been prepared by
carbodiimide-mediated synthesis, using adipic acid dihydrazide
derivatized CRM197 (a non-toxic variant of diphtheria toxin) and
tetanus toxoid, as carrier proteins.

10/7/4 (Item 4 from file: 351)
DIALOG(R)File 351:Derwent WPI
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0019961318 - Drawing available
WPI ACC NO: 2009-S40212/201008
Quantification of *****capsular***** saccharide of Salmonella typhi present
in sample, comprises de-O-acetylating any *****capsular***** saccharide of
Salmonella typhi present in sample, and obtaining nuclear magnetic
resonance spectrum of sample
Patent Assignee: NOVARTIS AG (NOVS)
Inventor: BERTI F; MICOLI F; PROIETTI D
Patent Family (6 patents, 125 countries)
Patent Application
Number Kind Date Number Kind Date Update
WO 2009150533 A2 20091217 WO 2009IB6087 A 20090612 201008 B

WO 2009150533	A3	20100204	WO 2009IB6087	A	20090612	201010	E
AU 2009259007	A1	20091217	AU 2009259007	A	20090612	201111	E
CA 2727563	A1	20091217	CA 2727563	A	20090612	201120	E
			WO 2009IB6087	A	20090612		
			CA 2727563	A	20101210		
IN 201004854	P2	20110311	WO 2009IB6087	A	20090612	201123	E
			IN 2010KN4854	A	20101220		
EP 2300817	A2	20110330	EP 2009762061	A	20090612	201124	E
			WO 2009IB6087	A	20090612		

Priority Applications (no., kind, date): IT 2008MI1079 A 20080613

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
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WO 2009150533	A2	EN	23	13	
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National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW
GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

WO 2009150533	A3	EN
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National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW
GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

AU 2009259007	A1	EN	Based on OPI patent	WO 2009150533
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CA 2727563	A1	EN	PCT Application	WO 2009IB6087
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PCT national entry CA 2727563

Based on OPI patent WO 2009150533

IN 201004854	P2	EN	PCT Application	WO 2009IB6087
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EP 2300817	A2	EN	PCT Application	WO 2009IB6087
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Based on OPI patent WO 2009150533

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR AL
BA RS

Alerting Abstract WO A2

NOVELTY - Quantification of ****capsular**** saccharide of ~Salmonella typhi ~ (Vi) present in a sample comprises de-O-acetylating any Vi saccharide present in the sample, and obtaining a nuclear magnetic resonance (NMR) spectrum of the sample.

DESCRIPTION - An INDEPENDENT CLAIM is included for a method for quantifying Vi saccharide present in a sample by liquid chromatography.

USE - Quantification of Vi saccharide present in a sample (claimed).

ADVANTAGE - The two methods are simple and accurate for quantifying Vi saccharide and its conjugates that allow the detection of very low (≤ 5 μ g/ml, including as low as 1 μ g/ml) Vi concentrations. The liquid chromatography is an improvement over conventional techniques, such as acridine orange method, as it permits the quantification of Vi in a sample containing proteins, reagents and other contaminants.

DESCRIPTION OF DRAWINGS - The drawing shows a graph of HPAEC-PAD analysis of Vi saccharide after de-O-acetylation and hydrolysis with 4 M TFA at 120 degrees Celsius for 2 hours.

Technology Focus

BIOTECHNOLOGY - Preferred Component: The Vi saccharide is from ~S. typhi
~ or ~Citrobacter freundii ~ .

INORGANIC CHEMISTRY - Preferred Component: The Vi saccharide is
de-O-acetylated by sodium deuterioxide.

INSTRUMENTATION AND TESTING - Preferred Process: The method further
comprises using NMR spectrum to calculate the amount of Vi saccharide
present in the sample, and adding a known amount of reference compound to
the sample. An N-acetyl resonance is used to calculate the amount of Vi
saccharide present in the sample. The NMR spectroscopy is hydrogen-1 NMR
spectroscopy. The liquid chromatography is high performance anion exchange
chromatography (HPAEC), and the method uses pulsed amperometric detection
(PAD) or (HPAEC-PAD). The method comprises hydrolyzing Vi saccharide
present in the sample, de-acetylating Vi saccharide present in the sample,
and analyzing the sample by liquid chromatography. The method further
comprises a second hydrolysis step that follows the de-acetylation step.
The hydrolysis step(s) is carried out by treatment with 4 M trifluoroacetic
acid (TFA) at 120(deg) C for 2 hours. The de-acetylation step is carried
out by treatment with 2 M sodium hydroxide at 110(deg) C for 6 hours.
Hydrolysis and de-acetylation involves treatment with sodium hydroxide at
100-150(deg) C for 2-6 hours.

ORGANIC CHEMISTRY - Preferred Component: The reference compound is citric
acid or ethanol.

Title Terms/Index Terms/Additional Words: QUANTIFICATION; CAPSULE;
SACCHARIDE; SALMONELLA; TYPHI; PRESENT; SAMPLE; COMPRISE; DE; ACETYLATE;
OBTAIN; NUCLEAR; MAGNETIC; RESONANCE; SPECTRUM

Class Codes

International Classification (Main): G01N-033/15

International Classification (+ Attributes)

IPC + Level Value Position Status Version

G01N-0033/15 A I F B 20060101

ECLA: G01R-033/46

ICO: S01N-224:352, S01N-333:255, S01N-400:10, S01R-330:400A, S01R-330:404B

File Segment: CPI; EPI

DWPI Class: B04; J04; S03

Manual Codes (EPI/S-X): S03-E07C; S03-E14A1

Manual Codes (CPI/A-M): B04-C02F; B11-C08A; B11-C08D2; B12-K04; J04-B01A;
J04-B01C; J04-C01; J04-C03

Original Publication Data by Authority

Australia

Publication No. AU 2009259007 A1 (Update 201111 E)

Publication Date: 20091217

Assignee: NOVARTIS AG (NOVS)

Inventor: MICOLI F

BERTI F

PROIETTI D

Language: EN

Application: AU 2009259007 A 20090612 (Local application)

Priority: IT 2008MI1079 A 20080613

Related Publication: WO 2009150533 A (Based on OPI patent)

Original IPC: G01N-33/15(B,I,H,EP,20060101,20100204,A,F)

Current IPC: G01N-33/15(B,I,H,EP,20060101,20100204,A,F)

Current ECLA class: G01R-33/46

Current ECLA ICO class: S01N-224:352 S01N-333:255 S01N-400:10 S01R-330:400A

S01R-330:404B

Canada

Publication No. CA 2727563 A1 (Update 201120 E)

Publication Date: 20091217

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: BERTI F, IT

MICOLI F, IT

PROIETTI D, IT

Language: EN

Application: CA 2727563 A 20090612 (Local application)

WO 2009IB6087 A 20090612 (PCT Application)

CA 2727563 A 20101210 (PCT national entry)

Priority: IT 2008MI1079 A 20080613

Related Publication: WO 2009150533 A (Based on OPI patent)

Original IPC: G01N-33/15(B,I,H,EP,20060101,20110129,A,F)

Current IPC: G01N-33/15(B,I,H,EP,20060101,20110129,A,F)

EPO

Publication No. EP 2300817 A2 (Update 201124 E)

Publication Date: 20110330

**ANALYSE VON VI-SACCHARIDEN

ANALYSIS OF VI SACCHARIDES

ANALYSE DE SACCHARIDES VI**

Assignee: Novartis AG, Lichtstrasse 35, 4056 Basel, CH (NOVS)

Inventor: BERTI, Francesco, Novartis Vaccines, Via Fiorentina 1, I-53100

Siena, IT

MICOLI, Francesca, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

PROIETTI, Daniela, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

Agent: Marshall, Cameron John, Carpmaels Ransford, One Southampton Row,

London, WC1B 5HA, GB

Language: EN

Application: EP 2009762061 A 20090612 (Local application)

WO 2009IB6087 A 20090612 (PCT Application)

Priority: IT 2008MI1079 A 20080613

Related Publication: WO 2009150533 A (Based on OPI patent)

Designated States: (Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR AL

BA RS

Original IPC: G01N-33/15(B,I,H,EP,20060101,20100107,A,F)

Current IPC: G01N-33/15(B,I,H,EP,20060101,20100107,A,F)

Original Abstract: ~Salmonella typhi Vi~ saccharide can be assayed in two new ways. First, its proton NMR spectrum can be used, with comparison to an internal Standard permitting quantitative analysis. Second, anion exchange chromatography with amperometric detection can be used on hydrolysed saccharide.

India

Publication No. IN 201004854 P2 (Update 201123 E)

Publication Date: 20110311

Analysis of saccharides

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: BERTI F

MICOLI F

PROIETTI D

Language: EN

Application: IN 2010KN4854 A 20101220 (Local application)

WO 2009IB6087 A 20090612 (PCT Application)

Priority: IT 2008MI1079 A 20080613

Original IPC: G01N-33/15(A)

Current IPC: G01N-33/15(A)

WIPO

Publication No. WO 2009150533 A2 (Update 201008 B)

Publication Date: 20091217

**ANALYSIS OF VI SACCHARIDES

ANALYSE DE SACCHARIDES VI**

Assignee: ~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basel, CH

Residence: CH Nationality: CH (NOVS)

~(only US)~ BERTI, Francesco, Novartis Vaccines, Via Fiorentina 1,

I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ MICOLI, Francesca, Novartis Vaccines, Via Fiorentina 1,

I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ PROIETTI, Daniela, Novartis Vaccines, Via Fiorentina 1,

I-53100 Siena, IT Residence: IT Nationality: IT

Inventor: BERTI, Francesco, Novartis Vaccines, Via Fiorentina 1, I-53100

Siena, IT Residence: IT Nationality: IT

MICOLI, Francesca, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

Residence: IT Nationality: IT

PROIETTI, Daniela, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John et al., Carpmaels Ransford, 43-45

Bloomsbury Square, London WC1A 2RA, GB

Language: EN (23 pages, 13 drawings)

Application: WO 2009IB6087 A 20090612 (Local application)

Priority: IT 2008MI1079 A 20080613

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH

BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD

GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS

LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT

RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC

VN ZA ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE

IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW

MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: G01N-33/15(B,I,H,EP,20060101,A,F)

G01N-33/15(B,I,M,98,20060101,C)

Current IPC: G01N-33/15(B,I,H,EP,20060101,20091217,A,F)

Current ECLA class: G01R-33/46

Current ECLA ICO class: S01N-224:352 S01N-333:255 S01N-400:10 S01R-330:400A

S01R-330:404B

Original Abstract: ~Salmonella typhi Vi~ saccharide can be assayed in two new ways. First, its proton NMR spectrum can be used, with comparison to an internal Standard permitting quantitative analysis. Second, anion exchange chromatography with amperometric detection can be used on hydrolysed saccharide.

Le saccharide VI de ~Salmonella typhi~ peut etre dose de deux nouvelles facons. Tout d'abord, son spectre de RMN du proton peut etre utilise, avec comparaison avec un etalon interne permettant une analyse quantitative. Ensuite, une chromatographie d'echange d'anions avec une detection amperometrique peut etre utilisee sur un saccharide hydrolyse.

Publication No. WO 2009150533 A3 (Update 201010 E)

Publication Date: 20100204

ANALYSIS OF VI SACCHARIDES

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: BERTI F, IT

MICOLI F, IT

PROIETTI D, IT

Language: EN

Application: WO 2009IB6087 A 20090612 (Local application)

Priority: IT 2008MI1079 A 20080613

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH

BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD
GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS
LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PE PG PH PL PT
RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC
VN ZA ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE
IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW
MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: G01N-33/15(B,I,H,EP,20060101,A,F)

G01N-33/15(B,I,M,98,20060101,C)

Current IPC: G01N-33/15(B,I,H,EP,20060101,20100204,A,F)

Current ECLA class: G01R-33/46

Current ECLA ICO class: S01N-224:352 S01N-333:255 S01N-400:10 S01R-330:400A
S01R-330:404B

Original Abstract: Salmonella typhi Vi saccharide can be assayed in two
new ways. First, its proton NMR spectrum can be used, with comparison
to an internal Standard permitting quantitative analysis. Second, anion
exchange chromatography with amperometric detection can be used on
hydrolysed saccharide.

10/7/5 (Item 5 from file: 351)
DIALOG(R)File 351:Derwent WPI
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0019309140

WPI ACC NO: 2009-L52824/200950

Membrane, useful for adsorption and removal of ****lipopolysaccharide****
from a suspension, comprises a polymeric substrate that binds to
****lipopolysaccharide****, which is from e.g. proteobacteria,
cyanobacteria and green sulfur bacteria

Patent Assignee: NOVARTIS AG (NOVS); BARBANI N (BARB-I); CIARDELLI G
(CIAR-I); COSTANTINO P (COST-I)

Inventor: BARBANI N; CIARDELLI G; COSTANTINO P; BRABANT N, CH; COSTANTINO
P, CH; SIADELY G, CH

Patent Family (7 patents, 123 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2009087571	A2	20090716	WO 2009IB133	A	20090107	200950 B
WO 2009087571	A3	20090903	WO 2009IB133	A	20090107	200958 E
EP 2244828	A2	20101103	EP 2009700597	A	20090107	201072 E
			WO 2009IB133	A	20090107	
US 20100282684	A1	20101111	WO 2009IB133	A	20090107	201074 E
			US 2010744306	A	20100716	
CN 101909742	A	20101208	CN 200980102069	A	20090107	201104 E
			WO 2009IB133	A	20090107	
CA 2711584	A1	20090716	CA 2711584	A	20090107	201110 E
			WO 2009IB133	A	20090107	
			CA 2711584	A	20100706	
JP 2011508772	W	20110317	WO 2009IB133	A	20090107	201121 E
			JP 2010541129	A	20090107	

Priority Applications (no., kind, date): GB 2008228 A 20080107

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2009087571	A2	EN	13	2	

National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA

ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW
GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

WO 2009087571 A3 EN

National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW
GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

EP 2244828 A2 EN

PCT Application WO 2009IB133

Based on OPI patent WO 2009087571

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR AL
BA RS

US 20100282684 A1 EN

PCT Application WO 2009IB133

CN 101909742 A ZH

PCT Application WO 2009IB133

Based on OPI patent WO 2009087571

CA 2711584 A1 EN

PCT Application WO 2009IB133

PCT national entry CA 2711584

Based on OPI patent WO 2009087571

JP 2011508772 W JA 15

PCT Application WO 2009IB133

Based on OPI patent WO 2009087571

Alerting Abstract WO A2

NOVELTY - Membrane comprises a polymeric substrate that binds

****lipopolysaccharide****.

DESCRIPTION - INDEPENDENT CLAIMS are included for:

- 1.a process for forming a polymeric substrate that binds to
****lipopolysaccharide****, comprising either contacting a homogeneous
polymer solution and a template solution, carrying out a phase
inversion of the resulting solution and removing the template, or
contacting a monomer solution and a template solution, reacting
crosslinking groups of the monomers to form a polymer and removing the
template;
- 2.a method for the removal of ****lipopolysaccharide**** from a
suspension comprising providing the polymeric substrate and contacting
the suspension with the polymeric substrate; and
- 3.a polymeric substrate produced by the process.

USE - The membrane is useful for: adsorption of

****lipopolysaccharide****, where the ****lipopolysaccharide**** is from
Gram-negative bacteria (which are proteobacteria, cyanobacteria,
spirochetes, green sulfur bacteria, green non-sulfur bacteria,
crenarchaeota, cocci, bacilli or nosocomial bacteria); and removing
****lipopolysaccharide**** from a suspension (all claimed).

ADVANTAGE - The membrane selectively removes ****lipopolysaccharide****,
or endotoxin, during the purification of molecules of biopharmaceutical
interest.

Technology Focus

PHARMACEUTICALS - Preferred Components: The suspension comprises water
and a pharmaceutical ingredient. The pharmaceutical ingredient is a
bacterial vaccine.

POLYMERS - Preferred Components: The polymeric substrate is selective for
at least one of heptose and 2-keto-3-deoxyoctonic acid. Preferred

Components: The template solution comprises at least one of heptose and 2-keto-3-deoxyoctonic acid. The polymeric substrate is in the form of a membrane or discrete particles. The polymeric substrate comprises one or more polar groups, preferably one or more hydroxyl groups. The polymeric substrate comprises poly(ethylene-co-vinyl alcohol). The ratio of ethylene:co-vinyl alcohol in the poly(ethylene-co-vinyl alcohol) is 30-60:70-40. Preferred Process: The process further comprises the step of making a membrane. The polymeric substrate is attached to a solid state support.

Title Terms/Index Terms/Additional Words: MEMBRANE; USEFUL; ADSORB; REMOVE; SUSPENSION; COMPRISE; POLYMERISE; SUBSTRATE; BIND; CYANOBACTERIA; GREEN; SULPHUR; BACTERIA

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B01D-0015/04	A	I	F	B	20060101
B01D-0061/00	A	I	L	B	20060101
B01D-0067/00	A	I	L	B	20060101
B01J-0020/26	A	I	F	B	20060101
B01J-0020/28	A	I	L	B	20060101
C08F-0118/02	A	I	L	B	20060101
A61K-0039/00	A	I	L	B	20060101
A61K-0039/02	A	I	F	B	20060101
A61K-0039/07	A	I	L	B	20060101
A61K-0047/32	A	I	L	B	20060101
A61K-0009/10	A	I	L	B	20060101
B01D-0069/00	A	I	L	B	20060101
B01D-0071/38	A	I	L	B	20060101
B01D-0015/04	C	I		B	20060101
B01D-0061/00	C	I	L	B	20090101
B01D-0061/00	C	I		B	20060101
B01D-0067/00	C	I	L	B	20090101
B01D-0067/00	C	I		B	20060101
B01J-0020/22	C	I	F	B	20090101
B01J-0020/22	C	I		B	20060101
B01J-0020/28	C	I	L	B	20090101
B01J-0020/28	C	I		B	20060101
C08F-0118/00	C	I		B	20060101

ECLA: B01D-061/00, B01D-067/00K18D, B01J-020/26, B01J-020/28D24

ICO: L01D-323:24

US Classification, Current Main: 210-691000; Secondary: 210-690000, 526-319000

US Classification, Issued: 210691, 210690, 526319

JP Classification

FI Term	Facet	Rank	Type
A61K-039/00	D	B	secondary
A61K-039/02		A	main
A61K-039/07		B	secondary
A61K-047/32		B	secondary
A61K-009/10		B	secondary
B01D-069/00		B	secondary
B01D-071/38		B	secondary

F-Term View Point Additional

Theme	+ Figure	Code
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4C076

4C085

4D006

4C085 AA03

4C076 AA22

4C085	BA07
4C085	BA15
4C085	CC07
4C076	CC31
4C085	DD37
4C085	EE01
4C076	EE03
4C076	EE06
4C076	FF70
4D006	GA01
4C076	GG43
4D006	MC34
4D006	NA54
4D006	PA01
4D006	PB02
4D006	PB70
4D006	PC43

File Segment: CPI

DWPI Class: A18; A97; B04; J01; J04

Manual Codes (CPI/A-M): A03-A01; A10-E09B; A12-W11A; A12-W11L; B04-C02V;
B04-C03; B14-S11B1; J01-C03; J04-X

Original Publication Data by Authority

Canada

Publication No. CA 2711584 A1 (Update 201110 E)

Publication Date: 20090716

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: COSTANTINO P, IT

CIARDELLI G, IT

BARBANI N, IT

Language: EN

Application: CA 2711584 A 20090107 (Local application)

WO 2009IB133 A 20090107 (PCT Application)

CA 2711584 A 20100706 (PCT national entry)

Priority: GB 2008228 A 20080107

Related Publication: WO 2009087571 A (Based on OPI patent)

Original IPC: B01D-61/00(B,I,H,EP,20060101,20100907,A,L)

B01D-67/00(B,I,H,EP,20060101,20100907,A,L)

B01J-20/26(B,I,H,EP,20060101,20100907,A,F)

B01J-20/28(B,I,H,EP,20060101,20100907,A,L)

Current IPC: B01D-61/00(B,I,H,EP,20060101,20100907,A,L)

B01D-67/00(B,I,H,EP,20060101,20100907,A,L)

B01J-20/26(B,I,H,EP,20060101,20100907,A,F)

B01J-20/28(B,I,H,EP,20060101,20100907,A,L)

China

Publication No. CN 101909742 A (Update 201104 E)

Publication Date: 20101208

Lipopolysaccharide decontamination

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: COSTANTINO P, CH

COSTANTINO PAOLO, CH

SIADELY G, CH

Siadely G, CH

BRABANT N, CH

BRABANT N, CH

Language: ZH

Application: CN 200980102069 A 20090107 (Local application)

WO 2009IB133 A 20090107 (PCT Application)

Priority: GB 2008228 A 20080107

Related Publication: WO 2009087571 A (Based on OPI patent)

Original IPC: B01D-61/00(I,CN,20060101,A,L) B01D-67/00(I,CN,20060101,A,L)

B01J-20/26(I,CN,20060101,A,F) B01J-20/28(I,CN,20060101,A,L)

Current IPC: B01D-61/00(B,I,H,CN,20060101,20101209,A,L)

B01D-67/00(B,I,H,CN,20060101,20101209,A,L)

B01J-20/26(B,I,H,CN,20060101,20101209,A,F)

B01J-20/28(B,I,H,CN,20060101,20101209,A,L)

Original Abstract: The invention claims materials and methods for the selective removal of lipopolysaccharide during the purification of molecules of biopharmaceutical interest, which are based on a polymeric substrate that binds lipopolysaccharide. Preferably, the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid. The substrate can be formed by a process comprising: (i) contacting a homogeneous polymer solution and a template solution; (ii) carrying out a phase inversion of the resulting solution; and (iii) removing the template.

Claim: [CLAIM 1] A membrane for adsorption of lipopolysaccharide, comprising a polymeric substrate that binds lipopolysaccharide.

[CLAIM 2] The membrane according to claim 1, wherein the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid.

[CLAIM 3] The membrane according to either of claims 1 and 2, wherein the lipopolysaccharide is from Gram-negative bacteria.

[CLAIM 4] The membrane according to claim 3, wherein the Gram-negative bacteria are proteobacteria, cyanobacteria, spirochaetes, green sulphur bacteria, green non-sulphur bacteria, crenarchaeota, cocci, bacilli or nosocomial bacteria.

[CLAIM 5] A process for forming a polymeric substrate that binds lipopolysaccharide, comprising steps of: i. contacting a homogeneous polymer solution and a template solution; ii. carrying out a phase inversion of the resulting solution; and iii. removing the template.

[CLAIM 6] A process for forming a polymeric substrate that binds lipopolysaccharide, comprising steps of: i. contacting a monomer solution and a template solution; ii. reacting cross-linking groups of the monomers to form a polymer; and iii. removing the template.

[CLAIM 7] The process according to either of claims 5 and 6, further comprising the step of making a membrane.

[CLAIM 8] The process according to any of claims 5 to 7, wherein the template solution comprises at least one of heptose and 2-keto-3-deoxyoctonic acid.

[CLAIM 9] A method for the removal of lipopolysaccharide from a suspension comprising steps of: i. providing a polymeric substrate that binds lipopolysaccharide; and ii. contacting the suspension with the polymeric substrate.

[CLAIM 10] The method according to claim 9, wherein the polymeric substrate is in the form of a membrane.

[CLAIM 11] The method according to claim 9, wherein the polymeric substrate is in the form of discrete particles.

[CLAIM 12] The method according to claim 9, wherein the polymeric substrate is attached to a solid state support.

[CLAIM 13] The method according to any one of claims 9 to 12, wherein the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid.

[CLAIM 14] The method according to any one of claims 9 to 13, wherein the lipopolysaccharide is from Gram-negative bacteria.

[CLAIM 15] The method according to claim 14, wherein the Gram-negative bacteria are proteobacteria, cyanobacteria, spirochaetes, green sulphur bacteria, green non-sulphur bacteria, crenarchaeota or nosocomial bacteria.

[CLAIM 16] The method according to any one of claims 9 to 15, wherein the

suspension comprises water.

[CLAIM 17] The method according to any one of claims 9 to 16, wherein the suspension comprises a pharmaceutical ingredient.

[CLAIM 18] The method according to claim 17, wherein the pharmaceutical ingredient is a bacterial vaccine.

[CLAIM 19] The membrane, process or method according to any preceding claim, wherein the polymeric substrate comprises one or more polar groups.

[CLAIM 20] The membrane, process or method according to claim 19, wherein the polymeric substrate comprises one or more hydroxyl groups.

[CLAIM 21] The membrane, process or method according to any preceding claim, wherein the polymeric substrate comprises poly(ethylene-co-vinyl alcohol).

[CLAIM 22] The membrane, process or method according to claim 21, wherein the ratio of ethylene: co-vinyl alcohol in the poly(ethylene-co-vinyl alcohol) is 30-60:70-40.

[CLAIM 23] A polymeric substrate produced by the process according to any one of claims 5 to 7.

EPO

Publication No. EP 2244828 A2 (Update 201072 E)

Publication Date: 20101103

**LIPOPOLYSACCHARIDE-DECONTAMINATION

LIPOPOLYSACCHARIDE DECONTAMINATION

DECONTAMINATION DE LIPOPOLYSACCHARIDE**

Assignee: Novartis AG, Lichtstrasse 35, 4056 Basel, CH (NOVS)

Inventor: COSTANTINO, Paolo, Novartis VaccinesDiagnostics, Via Fiorentina 1, I-53100 Siena, IT

Agent: Marshall, Cameron John, Carpmiels Ransford, One Southampton Row, London, WC1B 5HA, GB

Language: EN

Application: EP 2009700597 A 20090107 (Local application)

WO 2009IB133 A 20090107 (PCT Application)

Priority: GB 2008228 A 20080107

Related Publication: WO 2009087571 A (Based on OPI patent)

Designated States: (Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR AL BA RS

Original IPC: B01D-61/00(B,I,H,EP,20060101,20090804,A,L)

B01D-61/00(B,I,M,98,20060101,20090804,C)

B01D-67/00(B,I,H,EP,20060101,20090804,A,L)

B01D-67/00(B,I,M,98,20060101,20090804,C)

B01J-20/22(B,I,M,98,20060101,20090804,C)

B01J-20/26(B,I,H,EP,20060101,20090804,A,F)

B01J-20/28(B,I,H,EP,20060101,20090804,A,L)

B01J-20/28(B,I,M,98,20060101,20090804,C)

Current IPC: B01D-61/00(B,I,H,EP,20060101,20090804,A,L)

B01D-61/00(B,I,M,98,20060101,20090804,C)

B01D-67/00(B,I,H,EP,20060101,20090804,A,L)

B01D-67/00(B,I,M,98,20060101,20090804,C)

B01J-20/22(B,I,M,98,20060101,20090804,C)

B01J-20/26(B,I,H,EP,20060101,20090804,A,F)

B01J-20/28(B,I,H,EP,20060101,20090804,A,L)

B01J-20/28(B,I,M,98,20060101,20090804,C)

Original Abstract: Materials and methods for the selective removal of lipopolysaccharide during the purification of molecules of biopharmaceutical interest are based on a polymeric substrate that binds lipopolysaccharide. Preferably, the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid. The substrate can be formed by a process comprising: (i) contacting a homogeneous polymer solution and a template solution; (ii) carrying out a phase inversion of the resulting solution; and (iii) removing the

template.

Japan

Publication No. JP 2011508772 W (Update 201121 E)

Publication Date: 20110317

Language: JA (15 pages)

Application: JP 2010541129 A 20090107 (Local application)

WO 2009IB133 A 20090107 (PCT Application)

Priority: GB 2008228 A 20080107

Related Publication: WO 2009087571 A (Based on OPI patent)

Original IPC: A61K-39/00(B,I,H,JP,20060101,20110218,A,L)

A61K-39/02(B,I,H,JP,20060101,20110218,A,F)

A61K-39/07(B,I,H,JP,20060101,20110218,A,L)

A61K-47/32(B,I,H,JP,20060101,20110218,A,L)

A61K-9/10(B,I,H,JP,20060101,20110218,A,L)

B01D-69/00(B,I,H,JP,20060101,20110218,A,L)

B01D-71/38(B,I,H,JP,20060101,20110218,A,L)

Current IPC: A61K-39/00(B,I,H,JP,20060101,20110218,A,L)

A61K-39/02(B,I,H,JP,20060101,20110218,A,F)

A61K-39/07(B,I,H,JP,20060101,20110218,A,L)

A61K-47/32(B,I,H,JP,20060101,20110218,A,L)

A61K-9/10(B,I,H,JP,20060101,20110218,A,L)

B01D-69/00(B,I,H,JP,20060101,20110218,A,L)

B01D-71/38(B,I,H,JP,20060101,20110218,A,L)

Current JP FI-Terms: A61K-39/02 (main, A) A61K-39/00 D (secondary, B)

A61K-39/07 (secondary, B) A61K-47/32 (secondary, B) A61K-9/10

(secondary, B) B01D-69/00 (secondary, B) B01D-71/38 (secondary, B)

Current JP F-Terms: 4C076 4C085 4D006 4C085AA03 4C076AA22 4C085BA07

4C085BA15 4C085CC07 4C076CC31 4C085DD37 4C085EE01 4C076EE03 4C076EE06

4C076FF70 4D006GA01 4C076GG43 4D006MC34 4D006NA54 4D006PA01 4D006PB02

4D006PB70 4D006PC43

United States

Publication No. US 20100282684 A1 (Update 201074 E)

Publication Date: 20101111

LIPOPOLYSACCHARIDE DECONTAMINATION

Assignee: Costantino, Paolo, Siena, IT Residence: IT (COST-I)

Ciardelli, Gianluca, Pisa, IT Residence: IT (CIAR-I)

Barbani, Niccoletta, Pisa, IT Residence: IT (BARB-I)

Inventor: Costantino, Paolo, Siena, IT Residence: IT

Ciardelli, Gianluca, Pisa, IT Residence: IT

Barbani, Niccoletta, Pisa, IT Residence: IT

Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY-

X100B, P.O. BOX 8097, Emeryville, CA, US

Language: EN

Application: US 2010744306 A 20100716 (Local application)

WO 2009IB133 A 20090107 (PCT Application)

Priority: GB 2008228 A 20080107

Original IPC: B01D-15/04(B,I,H,US,20060101,20101111,A,F)

B01D-15/04(B,I,M,98,20060101,20101111,C)

C08F-118/00(B,I,M,98,20060101,20101111,C)

C08F-118/02(B,I,H,US,20060101,20101111,A,L)

Current IPC: B01D-15/04(B,I,H,US,20060101,20101111,A,F)

B01D-15/04(B,I,M,98,20060101,20101111,C)

C08F-118/00(B,I,M,98,20060101,20101111,C)

C08F-118/02(B,I,H,US,20060101,20101111,A,L)

Current ECLA class: B01D-61/00 B01D-67/00K18D B01J-20/26 B01J-20/28D24

Current ECLA ICO class: L01D-323:24

Current US Class (main): 210-691000

Current US Class (secondary): 210-690000 526-319000

Original US Class (main): 210691

Original US Class (secondary): 210690 526319

Original Abstract: Materials and methods for the selective removal of lipopolysaccharide during the purification of molecules of bio-pharmaceutical interest are based on a polymeric substrate that binds lipopolysaccharide. Preferably, the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid. The substrate can be formed by a process comprising: (i) contacting a homogeneous polymer solution and a template solution; (ii) carrying out a phase inversion of the resulting solution; and (iii) removing the template.

Claim:

1.

1. A membrane for adsorption of lipopolysaccharide, comprising a polymeric substrate that binds lipopolysaccharide.

WIPO

Publication No. WO 2009087571 A2 (Update 200950 B)

Publication Date: 20090716

**LIPOPOLYSACCHARIDE DECONTAMINATION

DECONTAMINATION DE LIPOPOLYSACCHARIDE**

Assignee: ~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basle, CH

Residence: CH Nationality: CH (NOVS)

~(only US)~ COSTANTINO, Paolo, Novartis Vaccines Diagnostics, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

Inventor: COSTANTINO, Paolo, Novartis Vaccines Diagnostics, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John, Carpmaels Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, GB

Language: EN (13 pages, 2 drawings)

Application: WO 2009IB133 A 20090107 (Local application)

Priority: GB 2008228 A 20080107

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: B01D-61/00(B,I,H,EP,20060101,A,L)

B01D-61/00(B,I,M,98,20060101,C) B01D-67/00(B,I,H,EP,20060101,A,L)

B01D-67/00(B,I,M,98,20060101,C) B01J-20/22(B,I,M,98,20060101,C)

B01J-20/26(B,I,H,EP,20060101,A,F) B01J-20/28(B,I,H,EP,20060101,A,L)

B01J-20/28(B,I,M,98,20060101,C)

Current IPC: B01D-61/00(B,I,H,EP,20060101,20090716,A,L)

B01D-61/00(B,I,H,EP,20090101,20090716,C,L)

B01D-67/00(B,I,H,EP,20060101,20090716,A,L)

B01D-67/00(B,I,H,EP,20090101,20090716,C,L)

B01J-20/22(B,I,H,EP,20090101,20090716,C,F)

B01J-20/26(B,I,H,EP,20060101,20090716,A,F)

B01J-20/28(B,I,H,EP,20060101,20090716,A,L)

B01J-20/28(B,I,H,EP,20090101,20090716,C,L)

Current ECLA class: B01D-61/00 B01D-67/00K18D B01J-20/26 B01J-20/28D24

Current ECLA ICO class: L01D-323:24

Original Abstract: Materials and methods for the selective removal of lipopolysaccharide during the purification of molecules of biopharmaceutical interest are based on a polymeric substrate that binds lipopolysaccharide. Preferably, the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid. The substrate can be formed by a process comprising: (i) contacting a homogeneous polymer solution and a template solution; (ii) carrying out a phase inversion of the resulting solution; and (iii) removing the

template.

L'invention concerne des matieres et des procedes pour le retrait selectif de lipopolysaccharide durant la purification de molecules d'interet biopharmaceutique qui sont fondees sur un substrat polymere qui se lie au lipopolysaccharide. De preference, le substrat polymere est selectif pour au moins l'un parmi l'heptose et l'acide 2-ceto-3-desoxyoctonique. Le substrat peut etre forme par un procede consistant a: (i) mettre en contact une solution polymere homogene et une solution modele; (ii) a realiser une inversion de phase de la solution resultante; et (iii) a retirer le modele.

Publication No. WO 2009087571 A3 (Update 200958 E)

Publication Date: 20090903

LIPOPOLYSACCHARIDE DECONTAMINATION

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: BARBANI N, IT

CIARDELLI G, IT

COSTANTINO P, IT

Language: EN

Application: WO 2009IB133 A 20090107 (Local application)

Priority: GB 2008228 A 20080107

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE
IS IT LT LU LV MC MK MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW
MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: B01D-61/00(B,I,H,EP,20060101,A,L)

B01D-61/00(B,I,M,98,20060101,C) B01D-67/00(B,I,H,EP,20060101,A,L)

B01D-67/00(B,I,M,98,20060101,C) B01J-20/22(B,I,M,98,20060101,C)

B01J-20/26(B,I,H,EP,20060101,A,F) B01J-20/28(B,I,H,EP,20060101,A,L)

B01J-20/28(B,I,M,98,20060101,C)

Current IPC: B01D-61/00(B,I,H,EP,20060101,20090903,A,L)

B01D-61/00(B,I,H,EP,20090101,20090903,C,L)

B01D-67/00(B,I,H,EP,20060101,20090903,A,L)

B01D-67/00(B,I,H,EP,20090101,20090903,C,L)

B01J-20/22(B,I,H,EP,20090101,20090903,C,F)

B01J-20/26(B,I,H,EP,20060101,20090903,A,F)

B01J-20/28(B,I,H,EP,20060101,20090903,A,L)

B01J-20/28(B,I,H,EP,20090101,20090903,C,L)

Current ECLA class: B01D-61/00 B01D-67/00K18D B01J-20/26 B01J-20/28D24

Current ECLA ICO class: L01D-323:24

Original Abstract: Materials and methods for the selective removal of lipopolysaccharide during the purification of molecules of biopharmaceutical interest are based on a polymeric substrate that binds lipopolysaccharide. Preferably, the polymeric substrate is selective for at least one of heptose and 2-keto-3-deoxyoctonic acid. The substrate can be formed by a process comprising: (i) contacting a homogeneous polymer solution and a template solution; (ii) carrying out a phase inversion of the resulting solution; and (iii) removing the template.

10/7/6 (Item 6 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0019248030

WPI ACC NO: 2009-L02218/200946

Cultivating Streptococcus for ****capsular**** ****polysaccharide**** (cps) production comprises providing an inoculum of a strain of Streptococcus expressing the cps, and cultivating the strain by fermentation
 Patent Assignee: NOVARTIS AG (NOVS); NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: BAZZOCCHI G; BERTI F; CICALA C; CICALA C M; CONSTANTINO P; COSTANTINO P; FONTANI S; NORELLI F; OLIVIERI R; BAZZOCCHI G, CH; BERTI F, CH; CICALA C M, CH; COSTANTINO P, CH; FONTANI S, CH; NORELLI F, CH; OLIVIERI R, CH

Patent Family (9 patents, 123 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2009081276	A2	20090702	WO 2008IB3729	A	20081219	200946 B
WO 2009081276	A3	20090903	WO 2008IB3729	A	20081219	200958 E
AU 2008339553	A1	20090702	AU 2008339553	A	20081219	201050 E
CA 2708878	A1	20090702	CA 2708878	A	20081219	201064 E
			WO 2008IB3729	A	20081219	
			CA 2708878	A	20100610	
EP 2235159	A2	20101006	EP 2008864247	A	20081219	201065 E
			WO 2008IB3729	A	20081219	
US 20100272755	A1	20101028	US 20078941	P	20071220	201071 E
			WO 2008IB3729	A	20081219	
			US 2010747914	A	20100613	
IN 201002275	P2	20101008	WO 2008IB3729	A	20081219	201072 E
			IN 2010KN2275	A	20100622	
CN 101932698	A	20101229	CN 200880126144	A	20081219	201109 E
			WO 2008IB3729	A	20081219	
JP 2011507501	W	20110310	WO 2008IB3729	A	20081219	201118 E
			JP 2010538947	A	20081219	

Priority Applications (no., kind, date): US 20078941 P 20071220; US 20078941 P 20071220; GB 200818453 A 20081008

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
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WO 2009081276	A2	EN	159	30	
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National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

WO 2009081276	A3	EN
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National Designated States, Confirmed: AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

AU 2008339553	A1	EN	Based on OPI patent	WO 2009081276
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CA 2708878	A1	EN	PCT Application	WO 2008IB3729
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			PCT national entry	CA 2708878
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			Based on OPI patent	WO 2009081276
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EP 2235159	A2	EN	PCT Application	WO 2008IB3729
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			Based on OPI patent	WO 2009081276
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Regional Designated States, Confirmed: AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR AL BA			
MK RS			
US 20100272755	A1	EN	Related to Provisional US 20078941 PCT Application WO 2008IB3729
IN 201002275	P2	EN	PCT Application WO 2008IB3729
CN 101932698	A	ZH	PCT Application WO 2008IB3729
			Based on OPI patent WO 2009081276
JP 2011507501	W	JA 120	PCT Application WO 2008IB3729
			Based on OPI patent WO 2009081276

Alerting Abstract WO A2

NOVELTY - Cultivating ~Streptococcus ~ for production of cps on a manufacturing scale comprises providing an inoculum of a strain of ~Streptococcus ~ expressing the cps, and cultivating the strain by fermentation, where the cultivating comprises a linear addition of a carbon source to a cultivating medium, and does not use an algorithm to control the cultivating by monitoring a pH of the cultivating medium.

DESCRIPTION - INDEPENDENT CLAIMS are: (1) a cultivating medium comprising a ~Streptococcus ~ strain, a phosphate source, a carbon source, a vitamin source, and an amino acid source to grow ~Streptococcus ~, where the vitamin source consists of six or fewer vitamins selected from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride and folic acid, where two of the vitamins have to be calcium pantothenate and niacinamide; (2) a cultivating medium comprising a ~Streptococcus ~ strain, a yeast extract, a phosphate source, a carbon source, a vitamin source, and optionally an amino acid source to grow ~Streptococcus ~, where the vitamin source consists of four or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, where one of the vitamins has to be biotin; #a method for purifying a cps from ~Streptococcus agalactiae ~ by a step of filtration using an adherent filter; and (3) a method for producing a purified cps by providing a crude isolate containing a cps, removing an alcohol precipitate formed by contacting the crude isolate with an alcohol solution, filtering to remove smaller molecular weight compounds while retaining the cps, and removing protein contaminants with a protein adherent filter to produce the purified cps.

ACTIVITY - Virucide; Antiinflammatory; Respiratory-Gen; Immunostimulant. No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - The method and medium are useful for cultivating ~Streptococcus ~ for production of cps (claimed). The cps and composition are used in therapy, e.g. for manufacturing a medicament for the treatment of disease, preferably the disease is influenza or pneumonia, and for eliciting systemic and/or mucosal immunity.

ADVANTAGE - The present invention provides a simplified purification procedure that will produce higher levels of purity with fewer complicated and/or expensive purification steps. It provides a purification procedure that provides a good yield of cps whatever the initial purity of the ****polysaccharide****.

Technology Focus

BIOTECHNOLOGY - Preferred Method: The method for cultivating ~Streptococcus ~ for production of cps on a manufacturing scale further comprises recovering the cps. The strain of ~Streptococcus ~ further comprises ~S. agalactiae ~, where the strain of S. agalactiae is 090, H36b, CBJ111, or M781. An optical density (OD) of the inoculum is 0.6-1.8. A pH of the cultivating medium is 6.0-7.5, preferably 7.3. A temperature of the cultivating medium is 34-38(deg) C, preferably 36(deg) C. The carbon source further comprises glucose. The cultivation further comprises monitoring an OD of the cultivating medium such that when the OD reaches a

designated level, the linear addition of a carbon source is initiated, where the designated level is selected to achieve a higher volumetric production of cps. The designated level is 9.8-10.2, preferably 10. The cultivation further comprises monitoring an OD of the cultivating medium such that when the OD reaches a first and second instantaneous addition level, two instantaneous additions of yeast extract are initiated prior to the linear addition of a carbon source. The first and second instantaneous addition levels are selected to achieve a higher volumetric production of cps. The first instantaneous addition level is 2.8-3.2, preferably 3.0. The second instantaneous addition level is 4.3-4.7, preferably 4.5. The cultivating medium is a defined medium comprising a phosphate source, a mineral source, a carbon source, a vitamin source, and an amino acid source to grow *Streptococcus*, where the vitamin source consists of six or fewer vitamins selected from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride and folic acid, where two of the vitamins have to be calcium pantothenate and niacinamide. The cultivating medium is a complex medium comprising a yeast extract, a phosphate source, a carbon source, a vitamin source, and optionally an amino acid source to grow *Streptococcus*, where the vitamin source consists of four or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, where one of the vitamins has to be biotin. The method for purifying a cps from *Streptococcus agalactiae* does not include a step of cationic detergent treatment to precipitate the cps followed by a step of re-solubilization of the cps, where the adherent filter is a protein adherent filter, and where the adherent filter is a carbon filter. The step of filtration using an adherent filter is preceded by (i) alcoholic precipitation of contaminating proteins and/or nucleic acids, and (ii) diafiltration. The step of filtration using an adherent filter is followed by (iv) re-N-acetylation, and (v) diafiltration. The method for producing purified cps further comprises re-N-acetylating the purified cps, precipitating the purified cps, and formulating a vaccine with the cps as a component. The removing step comprises addition of an alcohol solution to a concentration sufficient to precipitate nucleic acid contaminants but not the cps, where the alcohol solution comprises ethanol. The alcohol solution further comprises calcium chloride (CaCl_2). The alcohol solution is added to a concentration of 10-50% ethanol, preferably 30% ethanol. The protein adherent filter is an activated carbon filter. Preferred Medium: In the cultivating medium of (1), the phosphate source consists of potassium hydrogen phosphate (K_2HPO_4), potassium dihydrogen phosphate (KH_2PO_4), sodium hydrogen phosphate monohydrate ($\text{Na}_2\text{HPO}_4 \cdot \text{H}_2\text{O}$), sodium dihydrogen phosphate monohydrate ($\text{NaH}_2\text{PO}_4 \cdot \text{H}_2\text{O}$), or sodium chloride (NaCl). The carbon source is glucose. The vitamin source consists of 3-6, or fewer from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride, and folic acid, where two have to be calcium pantothenate and niacinamide. The vitamin source consists of calcium pantothenate and niacinamide. The amino acid source consists of 16-19 or fewer from the following list of nineteen amino acids: alanine, arginine, glutamine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, valine, aspartic acid, cysteine hydrochloride, glutamic acid, and tyrosine, where fifteen have to be arginine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, serine, threonine, tryptophan, valine, cysteine hydrochloride, glutamic acid, and tyrosine. In the cultivating medium of (2), the vitamin source consists of 2-4 or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, where one of the vitamins has to be biotin. The vitamin source consists of biotin.

Title Terms/Index Terms/Additional Words: CULTIVATE; STREPTOCOCCUS; CAPSULE

; ****POLYSACCHARIDE****; PRODUCE; COMPRISE; INOCULATE; STRAIN; EXPRESS;
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C12N-0001/20	A	I	L	B	20060101
C12N-0001/20	A	I	F		20060101
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C12Q-0003/00	A	I	L	B	20060101
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A61P-0031/04	A	I	L	B	20060101
A61K-0039/04	C	I	L	B	20090101
A61K-0039/04	C	I	F	B	20090101
A61K-0039/04	C	I		B	20060101
A61K-0039/09	C	I		B	20060101
C07H-0001/00	C	I		B	20060101
C12N-0001/20	C	I	F	B	20090101
C12N-0001/20	C	I	L	B	20090101
C12N-0001/20	C	I		B	20060101
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C12N-001/20	A	A	main
C12N-001/20	A	C	linked
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C12P-019/04	C	C	linked
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Theme	+ Figure	Code

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4C085 AA03

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4B065 BB02

4B065	BB06
4B065	BB12
4B065	BB15
4C085	BB24
4B065	BB29
4B065	BC03
4B065	BC08
4B065	BD03
4B065	BD13
4B065	BD16
4B065	BD18
4B065	BD27
4B064	CA02
4B065	CA22
4B065	CA44
4B064	CC03
4B064	CC06
4C085	CC07
4B064	CC12
4B064	CC15
4B064	CD02
4B064	CD09
4B064	CD13
4B064	CD21
4B064	CE20
4B064	DA01
4C085	DD21
4C085	DD24
4C085	DD25
4C085	DD26
4C085	DD31
4C085	DD37
4C085	DD41
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China

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**Fermentation processes for cultivating streptococci and purification
processes for obtaining cps therefrom**
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Original Abstract: This invention is in the field of bacterial cultures, and specifically relates to the optimization of culture conditions to improve the production of bacterial capsular polysaccharides from Streptococcus strains in fed batch culture and to novel purification methods suitable for production scale purification of bacterial capsular polysaccharides from Streptococcus strains resulting in higher levels of purity than previously obtained for production scale.

Claim: [CLAIM 1] A method for cultivating Streptococcus for production of capsular polysaccharides (cps) on a manufacturing scale, wherein said method comprises (a) providing an inoculum of a strain of Streptococcus expressing the cps, and (b) cultivating the strain by fermentation, wherein said cultivating comprises a linear addition of a carbon source to a cultivating medium, and does not use an algorithm to control the cultivating by monitoring a pH of the cultivating medium.

[CLAIM 2] The method according to claim 1 further comprising step (c) recovering the capsular polysaccharide.

[CLAIM 3] The method according to claim 1 or claim 2, wherein said strain of Streptococcus further comprises Streptococcus agalactiae.

[CLAIM 4] The method according to claim 3, wherein said strain of Streptococcus agalactiae is 090, H36b, CBJ111, or M781.

[CLAIM 5] The method according to any one of claims 1-4, wherein an optical density (OD) of the inoculum is between about 0.6 and about 1.8.

[CLAIM 6] The method according to any one of claims 1-5, wherein a pH of the cultivating medium is between about 6.0 and about 7.5.

[CLAIM 7] The method according to claim 6, wherein the pH is about 7.3.

[CLAIM 8] The method according to any one of claims 1-7, wherein a temperature of the cultivating medium is between about 34 and about 38 degrees centigrade.

[CLAIM 9] The method according to claim 8, wherein the temperature is about 36 degrees centigrade.

[CLAIM 10] The method according to any one of claims 1-9, wherein said carbon source further comprises glucose.

[CLAIM 11] The method according to any one of claims 1-10, wherein said cultivating further comprises monitoring an OD of the cultivating medium such that when the OD reaches a designated level, said linear addition of a carbon source is initiated.

[CLAIM 12] The method according to claim 11, wherein said designated level is selected to achieve a higher volumetric production of cps.

[CLAIM 13] The method according to claim 11 or claim 12, wherein said designated level is between about 9.8 and about 10.2.

[CLAIM 14] The method according to claim 13, wherein said designated level is about 10.

[CLAIM 15] The method according to any one of claims 11-14, wherein said cultivating further comprises monitoring an OD of the cultivating

medium such that when the OD reaches a first and second instantaneous addition level, two instantaneous additions of yeast extract are initiated prior to said linear addition of a carbon source.

[CLAIM 16] The method according to claim 15, wherein said first and second instantaneous addition levels are selected to achieve a higher volumetric production of cps.

[CLAIM 17] The method according to claim 16, wherein said first instantaneous addition level is between about 2.8 and about 3.2.

[CLAIM 18] The method according to claim 17, wherein said first instantaneous addition level is about 3.0.

[CLAIM 19] The method according to any one of claims 16-18, wherein said second instantaneous addition level is between about 4.3 and about 4.7.

[CLAIM 20] The method according to claim 19, wherein said second instantaneous addition level is about 4.5.

[CLAIM 21] The method according to any one of claims 1-20, wherein said cultivating medium is a defined medium comprising a phosphate source, a mineral source, a carbon source, a vitamin source, and an amino acid source to grow *Streptococcus*, wherein said vitamin source consists of six or fewer vitamins selected from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride and folic acid, wherein two of the vitamins have to be calcium pantothenate and niacinamide.

[CLAIM 22] The method according to any one of claims 1-20, wherein said cultivating medium is a complex medium comprising a yeast extract, a phosphate source, a carbon source, a vitamin source, and optionally an amino acid source to grow *Streptococcus*, wherein said vitamin source consists of four or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, wherein one of the vitamins has to be biotin.

[CLAIM 23] A cultivating medium comprising a *Streptococcus* strain, a phosphate source, a carbon source, a vitamin source, and an amino acid source to grow *Streptococcus*, wherein said vitamin source consists of six or fewer vitamins selected from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride and folic acid, wherein two of the vitamins have to be calcium pantothenate and niacinamide.

[CLAIM 24] The cultivating medium according to claim 23, wherein said *Streptococcus* is *Streptococcus agalactiae*.

[CLAIM 25] The cultivating medium according to claim 23 or claim 24, wherein said phosphate source consists of K_2HPO_4 , KH_2PO_4 , $Na_2HPO_4 \cdot H_2O$, $NaH_2PO_4 \cdot H_2O$, or $NaCl$.

[CLAIM 26] The cultivating medium according to any one of claims 23-25, wherein said carbon source is glucose.

[CLAIM 27] The cultivating medium according to any one of claims 23-26, wherein said vitamin source consists of six or fewer from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride, and folic acid, wherein two have to be calcium pantothenate and niacinamide.

[CLAIM 28] The cultivating medium according to any one of claims 23-26, wherein said vitamin source consists of five or fewer from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride, and folic acid, wherein two have to be calcium pantothenate and niacinamide.

[CLAIM 29] The cultivating medium according to any one of claims 23-26, wherein said vitamin source consists of four or fewer from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride, and folic acid, wherein two have to be calcium

pantothenate and niacinamide.

[CLAIM 30] The cultivating medium according to any one of claims 23-26, wherein said vitamin source consists of three or fewer from the following list of seven vitamins: biotin, niacinamide, calcium pantothenate, riboflavin, thiamine hydrochloride, pyridoxine hydrochloride, and folic acid, wherein two have to be calcium pantothenate and niacinamide.

[CLAIM 31] The cultivating medium according to any one of claims 23-26, wherein said vitamin source consists of calcium pantothenate and niacinamide.

[CLAIM 32] The cultivating medium according to any one of claims 23-31, wherein said amino acid source consists of nineteen or fewer from the following list of nineteen amino acids: alanine, arginine, glutamine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, valine, aspartic acid, cysteine hydrochloride, glutamic acid, and tyrosine, wherein fifteen have to be arginine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, serine, threonine, tryptophan, valine, cysteine hydrochloride, glutamic acid, and tyrosine.

[CLAIM 33] The cultivating medium according to any one of claims 23-31, wherein said amino acid source consists of eighteen or fewer from the following list of nineteen amino acids: alanine, arginine, glutamine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, valine, aspartic acid, cysteine hydrochloride, glutamic acid, and tyrosine, wherein fifteen have to be arginine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, serine, threonine, tryptophan, valine, cysteine hydrochloride, glutamic acid, and tyrosine.

[CLAIM 34] The cultivating medium according to any one of claims 23-31, wherein said amino acid source consists of seventeen or fewer from the following list of nineteen amino acids: alanine, arginine, glutamine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, valine, aspartic acid, cysteine hydrochloride, glutamic acid, and tyrosine, wherein fifteen have to be arginine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, serine, threonine, tryptophan, valine, cysteine hydrochloride, glutamic acid, and tyrosine.

[CLAIM 35] The cultivating medium according to any one of claims 23-31, wherein said amino acid source consists of sixteen or fewer from the following list of nineteen amino acids: alanine, arginine, glutamine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, valine, aspartic acid, cysteine hydrochloride, glutamic acid, and tyrosine, wherein fifteen have to be arginine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, serine, threonine, tryptophan, valine, cysteine hydrochloride, glutamic acid, and tyrosine.

[CLAIM 36] The cultivating medium according to any one of claims 23-31, wherein said amino acid source consists of arginine, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, serine, threonine, tryptophan, valine, cysteine hydrochloride, glutamic acid, and tyrosine.

[CLAIM 37] A cultivating medium comprising a Streptococcus strain, a yeast extract, a phosphate source, a carbon source, a vitamin source, and optionally an amino acid source to grow Streptococcus, wherein said vitamin source consists of four or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, wherein one of the vitamins has to be biotin.

[CLAIM 38] The cultivating medium according to claim 37, wherein said Streptococcus is Streptococcus agalactiae.

[CLAIM 39] The cultivating medium according to claim 37 or claim 38, wherein said vitamin source consists of four or fewer vitamins selected

from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, wherein one of the vitamins has to be biotin.

[CLAIM 40] The cultivating medium according to claim 37 or claim 38, wherein said vitamin source consists of three or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, wherein one of the vitamins has to be biotin.

[CLAIM 41] The cultivating medium according to claim 37 or claim 38, wherein said vitamin source consists of two or fewer vitamins selected from the following list of five vitamins: biotin, niacinamide, riboflavin, thiamine hydrochloride and pyridoxine hydrochloride, wherein one of the vitamins has to be biotin.

[CLAIM 42] The cultivating medium according to claim 37 or claim 38, wherein said vitamin source consists of biotin.

[CLAIM 43] A method for purifying a capsular polysaccharide from *Streptococcus agalactiae* comprising a step of filtration using an adherent filter.

[CLAIM 44] The method according to claim 43, wherein the method does not include a step of cationic detergent treatment to precipitate the capsular polysaccharide followed by a step of re-solubilization of the capsular polysaccharide.

[CLAIM 45] The method according to claim 43 or claim 44, wherein the adherent filter is a protein adherent filter.

[CLAIM 46] The method according to any of claims 43-45, wherein the adherent filter is a carbon filter.

[CLAIM 47] The method according to any of claims 43-46, wherein the step of filtration using an adherent filter is preceded by the following steps: (i) alcoholic precipitation of contaminating proteins and/or nucleic acids; and (ii) diafiltration;

[CLAIM 48] The method according to any of claims 43-47, wherein the step of filtration using an adherent filter is followed by the following steps: (iv) re-N-acetylation; (v) diafiltration.

[CLAIM 49] A method for production of a purified capsular polysaccharide comprising: (a) providing a crude isolate containing a capsular polysaccharide; (b) removing an alcohol precipitate formed by contacting the crude isolate with an alcohol solution; (c) filtering to remove smaller molecular weight compounds while retaining the capsular polysaccharide; and (d) removing protein contaminants with a protein adherent filter to produce the purified capsular polysaccharide.

[CLAIM 50] The method according to claim 49 further comprising step (e) re-N-acetylating the purified capsular polysaccharide.

[CLAIM 51] The method according to claim 50 further comprising step (f) precipitating the purified capsular polysaccharide.

[CLAIM 52] The method according to claim 51 further comprising step (g) formulating a vaccine with the capsular polysaccharide as a component.

[CLAIM 53] The method according to any one of claims 49-52, wherein step (b) comprises addition of an alcohol solution to a concentration sufficient to precipitate nucleic acid contaminants but not the capsular polysaccharide.

[CLAIM 54] The method according to claim 53, wherein said alcohol solution comprises ethanol.

[CLAIM 55] The method according to claim 53 or claim 54, wherein said alcohol solution further comprises CaCl_2 .

[CLAIM 56] The method according to claim 54 or claim 55, wherein said alcohol solution is added to a concentration of between about 10 % and about 50% ethanol.

[CLAIM 57] The method according to claim 56, wherein said alcohol solution is added to a concentration of about 30% ethanol.

[CLAIM 58] The method according to any one of claims 49-57, wherein the protein adherent filter is an activated carbon filter.

EPO

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**FERMENTATIONSVERFAHREN ZUR KULTIVIERUNG VON STREPTOKOKKEN UND

REINIGUNGSVERFAHREN ZUR GEWINNUNG VON CPS DARAUS

FERMENTATION PROCESSES FOR CULTIVATING STREPTOCOCCI AND PURIFICATION

PROCESSES FOR OBTAINING CPS THEREFROM

PROCEDES DE FERMENTATION POUR CULTIVER DES STREPTOCOQUES ET PROCEDES DE

PURIFICATION POUR OBTENIR DES CPS A PARTIR DE CEUX-CI**

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Original IPC: A61K-39/04(B,I,H,EP,20060101,20090722,A,L)

A61K-39/04(B,I,M,98,20060101,20090722,C)

C12N-1/20(B,I,H,EP,20060101,20090722,A,F)

C12N-1/20(B,I,M,98,20060101,20090722,C)

C12P-19/00(B,I,M,98,20060101,20090722,C)

C12P-19/04(B,I,H,EP,20060101,20090722,A,L)

Current IPC: A61K-39/04(B,I,H,EP,20060101,20090722,A,L)

A61K-39/04(B,I,M,98,20060101,20090722,C)

C12N-1/20(B,I,H,EP,20060101,20090722,A,F)

C12N-1/20(B,I,M,98,20060101,20090722,C)

C12P-19/00(B,I,M,98,20060101,20090722,C)

C12P-19/04(B,I,H,EP,20060101,20090722,A,L)

Current ECLA class: C08B-37/00P C12N-1/20 C12P-19/04

Current ECLA ICO class: K61K-39:00

Original Abstract: This invention is in the field of bacterial cultures,
and specifically relates to the optimization of culture conditions to
improve the production of bacterial capsular polysaccharides from
Streptococcus strains in fed batch culture and to novel purification
methods suitable for production scale purification of bacterial
capsular polysaccharides from Streptococcus strains resulting in higher
levels of purity than previously obtained for production scale.

India

Publication No. IN 201002275 P2 (Update 201072 E)

Publication Date: 20101008

**Fermentation processes for cultivating streptococci and purification
processes for obtaining capsular polysaccharide of streptococci**

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: COSTANTINO P

NORELLI F

BERTI F

CICALA C M

BAZZOCCHI G

FONTANI S

OLIVIERI R
Language: EN
Application: IN 2010KN2275 A 20100622 (Local application)
WO 2008IB3729 A 20081219 (PCT Application)
Priority: US 20078941 P 20071220
Original IPC: C12N-1/20(A) C12P-19/04(B)
Current IPC: C12N-1/20(A) C12P-19/04(B)

Japan
Publication No. JP 2011507501 W (Update 201118 E)
Publication Date: 20110310
Language: JA (120 pages)
Application: JP 2010538947 A 20081219 (Local application)
WO 2008IB3729 A 20081219 (PCT Application)
Priority: US 20078941 P 20071220
GB 200818453 A 20081008
Related Publication: WO 2009081276 A (Based on OPI patent)
Original IPC: A61K-39/00(B, I, H, JP, 20060101, 20110210, A, L)
A61K-39/39(B, I, H, JP, 20060101, 20110210, A, L)
A61P-31/04(B, I, H, JP, 20060101, 20110210, A, L)
C12N-1/20(B, I, H, JP, 20060101, 20110210, A, F)
C12P-19/04(B, I, H, JP, 20060101, 20110210, A, L)
Current IPC: A61K-39/00(B, I, H, JP, 20060101, 20110210, A, L)
A61K-39/39(B, I, H, JP, 20060101, 20110210, A, L)
A61P-31/04(B, I, H, JP, 20060101, 20110210, A, L)
C12N-1/20(B, I, H, JP, 20060101, 20110210, A, F)
C12P-19/04(B, I, H, JP, 20060101, 20110210, A, L)
Current JP FI-Terms: C12N-1/20 A (main, A) A61K-39/00 G (secondary, B)
A61K-39/39 (secondary, B) A61P-31/04 (secondary, B) C12P-19/04 C
(secondary, B) C12N-1/20 A (linked, C) C12P-19/04 C (linked, C)
C12R-1:46 (linked, C)
Current JP F-Terms: 4B064 4B065 4C085 4C085AA03 4B065AA49X 4B065AC20
4B064AF17 4C085BA14 4C085BA38 4B065BB02 4B065BB06 4B065BB12 4B065BB15
4C085BB24 4B065BB29 4B065BC03 4B065BC08 4B065BD03 4B065BD13 4B065BD16
4B065BD18 4B065BD27 4B064CA02 4B065CA22 4B065CA44 4B064CC03 4B064CC06
4C085CC07 4B064CC12 4B064CC15 4B064CD02 4B064CD09 4B064CD13 4B064CD21
4B064CE20 4B064DA01 4C085DD21 4C085DD24 4C085DD25 4C085DD26 4C085DD31
4C085DD37 4C085DD41 4C085EE01 4C085GG01 4C085GG08 4C085GG10

United States
Publication No. US 20100272755 A1 (Update 201071 E)
Publication Date: 20101028
**FERMENTATION PROCESSES FOR CULTIVATING STREPTOCOCCI AND PURIFICATION
PROCESSES FOR OBTAINING CPS THEREFROM**
Assignee: NOVARTIS VACCINES AND DIAGNOSTICS SRL, Siena, IT (NOVS)
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Cicala, Concetta Maria, Castellina Scalo, IT Residence: IT
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Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY-
X100B, P.O. BOX 8097, Emeryville, CA, US
Language: EN

Application: US 2010747914 A 20100613 (Local application)

WO 2008IB3729 A 20081219 (PCT Application)

US 20078941 P 20071220 (Related to Provisional)

Priority: GB 200818453 A 20081008

Original IPC: A61K-39/09 (B, I, H, US, 20060101, 20101028, A, F)

A61K-39/09 (B, I, M, 98, 20060101, 20101028, C)

C07H-1/00 (B, I, H, US, 20060101, 20101028, A, L)

C07H-1/00 (B, I, M, 98, 20060101, 20101028, C)

C12N-1/20 (B, I, H, US, 20060101, 20101028, A, L)

C12N-1/20 (B, I, M, 98, 20060101, 20101028, C)

C12P-19/00 (B, I, M, 98, 20060101, 20101028, C)

C12P-19/04 (B, I, H, US, 20060101, 20101028, A, L)

C12Q-3/00 (B, I, H, US, 20060101, 20101028, A, L)

C12Q-3/00 (B, I, M, 98, 20060101, 20101028, C)

Current IPC: A61K-39/09 (B, I, H, US, 20060101, 20101028, A, F)

A61K-39/09 (B, I, M, 98, 20060101, 20101028, C)

C07H-1/00 (B, I, H, US, 20060101, 20101028, A, L)

C07H-1/00 (B, I, M, 98, 20060101, 20101028, C)

C12N-1/20 (B, I, H, US, 20060101, 20101028, A, L)

C12N-1/20 (B, I, M, 98, 20060101, 20101028, C)

C12P-19/00 (B, I, M, 98, 20060101, 20101028, C)

C12P-19/04 (B, I, H, US, 20060101, 20101028, A, L)

C12Q-3/00 (B, I, H, US, 20060101, 20101028, A, L)

C12Q-3/00 (B, I, M, 98, 20060101, 20101028, C)

Current ECLA class: C08B-37/00P C12N-1/20 C12P-19/04

Current ECLA ICO class: K61K-39:00

Current US Class (main): 424-244100

Current US Class (secondary): 435-003000 435-101000 435-253400 536-123100

Original US Class (main): 424244.1

Original US Class (secondary): 4353 435101 435253.4 536123.1

Original Abstract: This invention is in the field of bacterial cultures and specifically relates to the optimization of culture conditions to improve the production of bacterial capsular polysaccharides from ~Streptococcus~ strains in fed batch culture and to novel purification methods suitable for production scale purification of bacterial capsular polysaccharides from ~Streptococcus~ strains resulting in higher levels of purity than previously obtained for production scale.

Claim:

1.

****1**.** A method for cultivating ~Streptococcus~ for production of capsular polysaccharides (cps) on a manufacturing scale, wherein said method comprises (a) providing an inoculum of a strain of ~Streptococcus~ expressing the cps, and (b) cultivating the strain by fermentation, wherein said cultivating comprises a linear addition of a carbon source to a cultivating medium, and does not use an algorithm to control the cultivating by monitoring a pH of the cultivating medium.

WIPO

Publication No. WO 2009081276 A2 (Update 200946 B)

Publication Date: 20090702

****FERMENTATION PROCESSES FOR CULTIVATING STREPTOCOCCI AND PURIFICATION PROCESSES FOR OBTAINING CPS THEREFROM**

PROCEDES DE FERMENTATION POUR CULTIVER DES STREPTOCOQUES ET PROCEDES DE PURIFICATION POUR OBTENIR DES CPS A PARTIR DE CEUX-CI**

Assignee: ~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basel, CH

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 ~ (only US) ~ CICALA, Concetta, Maria, Novartis Vaccines, Via Fiorentina 1,
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 ~ (only US) ~ BAZZOCCHI, Giulia, Novartis Vaccines, Via Fiorentina 1,
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 ~ (only US) ~ FONTANI, Silvia, Novartis Vaccines, Via Fiorentina 1, I-53100
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 ~ (only US) ~ OLIVIERI, Roberto, Novartis Vaccines, Via Fiorentina 1,
 I-53100 Siena, IT Residence: IT Nationality: IT
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 BERTI, Francesco, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT
 Residence: IT Nationality: IT
 CICALA, Concetta, Maria, Novartis Vaccines, Via Fiorentina 1, I-53100
 Siena, IT Residence: IT Nationality: IT
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 OLIVIERI, Roberto, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT
 Residence: IT Nationality: IT
 COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT
 Agent: MARSHALL, Cameron, John et al., Carpmaels Ransford, 43-45
 Bloomsbury Square, London WC1A 2RA, GB
 Language: EN (159 pages, 30 drawings)
 Application: WO 2008IB3729 A 20081219 (Local application)
 Priority: US 20078941 P 20071220
 GB 200818453 A 20081008
 Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH
 BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
 GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
 LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
 RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
 ZM ZW
 (Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE
 IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ
 NA SD SL SZ TZ UG ZM ZW EA
 Original IPC: A61K-39/04(B,I,H,EP,20060101,A,L)
 A61K-39/04(B,I,M,98,20060101,C) C12N-1/20(B,I,H,EP,20060101,A,F)
 C12N-1/20(B,I,M,98,20060101,C) C12P-19/00(B,I,M,98,20060101,C)
 C12P-19/04(B,I,H,EP,20060101,A,L)
 Current IPC: A61K-39/04(B,I,H,EP,20060101,20090702,A,L)
 A61K-39/04(B,I,H,EP,20090101,20090702,C,L)
 C12N-1/20(B,I,H,EP,20060101,20090702,A,F)
 C12N-1/20(B,I,H,EP,20090101,20090702,C,F)
 C12P-19/00(B,I,H,EP,20090101,20090702,C,L)
 C12P-19/04(B,I,H,EP,20060101,20090702,A,L)
 Current ECLA class: C08B-37/00P C12N-1/20 C12P-19/04
 Current ECLA ICO class: K61K-39:00
 Original Abstract: This invention is in the field of bacterial cultures,
 and specifically relates to the optimization of culture conditions to
 improve the production of bacterial capsular polysaccharides from
 Streptococcus strains in fed batch culture and to novel purification
 methods suitable for production scale purification of bacterial
 capsular polysaccharides from Streptococcus strains resulting in higher
 levels of purity than previously obtained for production scale.
 La presente invention concerne le domaine des cultures bacteriennes, et
 concerne specifiquement l'optimisation de conditions de culture pour
 ameliorer la production de polysaccharides capsulaires bacteriens a
 partir de souches de Streptococcus (CPS) en culture a ecoulement
 discontinu. L'invention concerne egalement des nouveaux procedes de

purification adaptes pour la purification a l'echelle industrielle de polysaccharides capsulaires bacteriens a partir de souches de Streptococcus resultant en des niveaux plus eleves de purete que ceux precedemment obtenus a l'echelle industrielle.

Publication No. WO 2009081276 A3 (Update 200958 E)

Publication Date: 20090903

FERMENTATION PROCESSES FOR CULTIVATING STREPTOCOCCI AND PURIFICATION PROCESSES FOR OBTAINING CPS THEREFROM

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: BAZZOCCHI G, IT

BERTI F, IT

CICALA C M, IT

COSTANTINO P, IT

FONTANI S, IT

NORELLI F, IT

OLIVIERI R, IT

Language: EN

Application: WO 2008IB3729 A 20081219 (Local application)

Priority: US 20078941 P 20071220

GB 200818453 A 20081008

Designated States: (National Confirmed) AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(Regional Confirmed) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: A61K-39/04(B,I,H,EP,20060101,A,L)

A61K-39/04(B,I,M,98,20060101,C) C12N-1/20(B,I,H,EP,20060101,A,F)

C12N-1/20(B,I,M,98,20060101,C) C12P-19/00(B,I,M,98,20060101,C)

C12P-19/04(B,I,H,EP,20060101,A,L)

Current IPC: A61K-39/04(B,I,H,EP,20060101,20090903,A,L)

A61K-39/04(B,I,H,EP,20090101,20090903,C,L)

C12N-1/20(B,I,H,EP,20060101,20090903,A,F)

C12N-1/20(B,I,H,EP,20090101,20090903,C,F)

C12P-19/00(B,I,H,EP,20090101,20090903,C,L)

C12P-19/04(B,I,H,EP,20060101,20090903,A,L)

Current ECLA class: C08B-37/00P C12N-1/20 C12P-19/04

Current ECLA ICO class: K61K-39:00

Original Abstract: This invention is in the field of bacterial cultures, and specifically relates to the optimization of culture conditions to improve the production of bacterial capsular polysaccharides from Streptococcus strains in fed batch culture and to novel purification methods suitable for production scale purification of bacterial capsular polysaccharides from Streptococcus strains resulting in higher levels of purity than previously obtained for production scale.

10/7/7 (Item 7 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0018714931

WPI ACC NO: 2009-E02825/200914

Purifying saccharide antigen-carrier protein conjugates from a mixture, comprises contacting the mixture with hydroxyapatite and collecting the free saccharide antigen-carrier protein conjugates

Patent Assignee: NOVARTIS AG (NOVS); NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: AVERANI G; BELLUCCI C; BERTI F; BIGIO M; NORELLI F; AVERANI G, CH
; BELLUCCI C, CH; BERTI F, CH; BIGIO M, CH; NORELLI F, CH

Patent Family (7 patents, 123 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
WO 2009010877	A2	20090122	WO 2008IB2690	A	20080717	200914 B
WO 2009010877	A3	20091119	WO 2008IB2690	A	20080717	200976 E
AU 2008277353	A1	20090122	AU 2008277353	A	20080717	201016 E
EP 2180901	A2	20100505	EP 2008826340	A	20080717	201030 E
			WO 2008IB2690	A	20080717	
CA 2693936	A1	20090122	CA 2693936	A	20080717	201031 E
			WO 2008IB2690	A	20080717	
			CA 2693936	A	20100118	
CN 101795713	A	20100804	CN 200880106077	A	20080717	201058 E
			WO 2008IB2690	A	20080717	
US 20100239600	A1	20100923	WO 2008IB2690	A	20080717	201062 E
			US 2010669464	A	20100609	

Priority Applications (no., kind, date): GB 200713880 A 20070717

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
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WO 2009010877	A2	EN	54	8	
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National Designated States,Original: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH
GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

WO 2009010877	A3	EN
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National Designated States,Original: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH
GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

AU 2008277353	A1	EN	Based on OPI patent	WO 2009010877
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EP 2180901	A2	EN	PCT Application	WO 2008IB2690
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Based on OPI patent WO 2009010877

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

CA 2693936	A1	EN	PCT Application	WO 2008IB2690
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PCT national entry CA 2693936

Based on OPI patent WO 2009010877

CN 101795713	A	ZH	PCT Application	WO 2008IB2690
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Based on OPI patent WO 2009010877

US 20100239600	A1	EN	PCT Application	WO 2008IB2690
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Alerting Abstract WO A2

NOVELTY - Purifying saccharide antigen-carrier protein conjugates from a mixture, comprises contacting the mixture with hydroxyapatite and collecting the free saccharide antigen-carrier protein conjugates.

DESCRIPTION - INDEPENDENT CLAIMS are:

1.a method of preparing a pharmaceutical composition, comprising the method above, and mixing the saccharide antigen-carrier protein

conjugates with a pharmaceutically acceptable diluent or carrier; and

2.a pharmaceutical composition prepared by the latter method, for use (i) in therapy, (ii) for raising an immune response or (iii) as a vaccine.

ACTIVITY - Antibacterial. No biological data given.

MECHANISM OF ACTION - Vaccine; Protease-Inhibitor.

USE - The methods and composition are useful for purifying saccharide antigen-carrier protein conjugates from a mixture; for preparing a pharmaceutical composition; for use in therapy, for raising an immune response or as a vaccine; and for manufacturing a medicament for raising the immune response, or treating a bacterial infection (all claimed).

Technology Focus

BIOTECHNOLOGY - Preferred Method: In purifying saccharide antigen-carrier protein conjugates from the mixture, the mixture comprises free carrier protein and saccharide antigen-carrier protein conjugates. The mixture also comprises other contaminant proteins. The carrier protein is selected from tetanus toxoid, diphtheria toxoid, derivatives, ~****Neisseria**** ~****meningitidis**** ~ outer membrane proteins, synthetic proteins, heat shock proteins, pertussis proteins, cytokines, lymphokines, hormones, growth factors, poly-epitope carriers, protein D of ~Haemophilus influenzae ~ , pneumolysin, pneumococcal surface protein PspA, iron uptake proteins, toxin A or B from ~C. difficile ~ and/or a polypeptide carrier such as N19. The carrier protein is tetanus toxoid, diphtheria toxoid or derivatives. The carrier protein is CRM197. The saccharide antigen has a molecular weight of 5 kDa or 50 kDa or more. Also, the saccharide antigen is a bacterial ****capsular**** saccharide. Also, the saccharide antigen is glycosylated. Furthermore, the saccharide antigen is from ~N. ~****meningitidis**** ~ , ~Streptococcus pneumoniae ~ , ~Streptococcus agalactiae ~ , ~H. influenzae ~ , ~Pseudomonas aeruginosa ~ , ~Staphylococcus aureus ~ , ~E. faecalis ~ , ~E. faecium ~ , ~Y. enterocolitica ~ , ~V. cholerae ~ or ~S. typhi ~ . The carrier protein is conjugated to saccharide antigens from more than one bacterial species. The saccharide antigen is also conjugated to the carrier protein by a linker. Moreover, the method is carried out at pH 6.5-7.5, preferably at pH 7.2. Also, the method is carried out at a phosphate concentration of 50 mM or less. The hydroxyapatite is in the form of a gel, where the hydroxyapatite has a particle size of 40 µm or more, and a dynamic binding capacity of more than 10 mg lysozyme/g. Preparing the pharmaceutical composition also comprises mixing the product with an adjuvant.

Title Terms/Index Terms/Additional Words: PURIFICATION; SACCHARIDE; ANTIGEN ; CARRY; PROTEIN; CONJUGATE; MIXTURE; COMPRISE; CONTACT; COLLECT; FREE

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/09	A	I	L	B	20060101
A61K-0039/385	A	I	F	B	20060101
A61K-0047/48	A	I	F	B	20060101
A61P-0031/04	A	I	L	B	20060101
A61P-0031/12	A	I	L	B	20060101
A61P-0037/00	A	I	L	B	20060101
B01D-0015/00	A	I	L	B	20060101
B01J-0020/04	A	I	L	B	20060101
C07K-0001/14	A	I	L	B	20060101
A61K-0039/09	C	I	L	B	20090101
A61K-0039/385	C	I		B	20060101
A61K-0047/48	C	I	F	B	20090101

A61P-0031/00 C I L B 20090101
A61P-0031/00 C I B 20060101
A61P-0037/00 C I B 20060101
B01D-0015/00 C I L B 20090101
B01J-0020/04 C I L B 20090101
C07K-0001/00 C I B 20060101
C12N S 20060101
ECLA: A61K-039/09A, A61K-047/48R2, A61K-047/48R2D, A61K-047/48R2F,
A61K-047/48R2V, C07K-001/16
ICO: K61K-039:60P10
US Classification, Current Main: 424-193100; Secondary: 530-351000,
530-399000, 530-413000
US Classification, Issued: 424193.1, 530413, 530351, 530399

File Segment: CPI
DWPI Class: B04; D16
Manual Codes (CPI/A-M): B04-B04C1; B04-H01; B04-H06; B04-J01; B04-N03;
B04-N09; B05-B02A3; B11-B03; B14-A01; B14-D07C; B14-G01; B14-S11; D05-H07
; D05-H13

Original Publication Data by Authority

Australia
Publication No. AU 2008277353 A1 (Update 201016 E)
Publication Date: 20090122
Assignee: NOVARTIS AG (NOVS)
Inventor: AVERANI G
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BERTI F
BIGIO M
NORELLI F
Language: EN
Application: AU 2008277353 A 20080717 (Local application)
Priority: GB 200713880 A 20070717
Related Publication: WO 2009010877 A (Based on OPI patent)
Original IPC: A61K-47/48(B, I, H, EP, 20060101, 20091216, A, F)
A61K-39/09(B, I, H, EP, 20060101, 20091216, A, L)
A61P-31/04(B, I, H, EP, 20060101, 20091216, A, L)
B01D-15/00(B, I, H, EP, 20060101, 20091216, A, L)
B01J-20/04(B, I, H, EP, 20060101, 20091216, A, L)
A61K-39/09(B, I, H, EP, 20090101, 20091216, C, L)
A61K-47/48(B, I, H, EP, 20090101, 20091216, C, F)
A61P-31/00(B, I, H, EP, 20090101, 20091216, C, L)
B01D-15/00(B, I, H, EP, 20090101, 20091216, C, L)
B01J-20/04(B, I, H, EP, 20090101, 20091216, C, L)
Current IPC: A61K-39/09(B, I, H, EP, 20060101, 20091216, A, L)
A61K-39/09(B, I, H, EP, 20090101, 20091216, C, L)
A61K-47/48(B, I, H, EP, 20060101, 20091216, A, F)
A61K-47/48(B, I, H, EP, 20090101, 20091216, C, F)
A61P-31/00(B, I, H, EP, 20090101, 20091216, C, L)
A61P-31/04(B, I, H, EP, 20060101, 20091216, A, L)
B01D-15/00(B, I, H, EP, 20060101, 20091216, A, L)
B01D-15/00(B, I, H, EP, 20090101, 20091216, C, L)
B01J-20/04(B, I, H, EP, 20060101, 20091216, A, L)
B01J-20/04(B, I, H, EP, 20090101, 20091216, C, L)
Current ECLA class: A61K-39/09A A61K-47/48R2 A61K-47/48R2D A61K-47/48R2F
A61K-47/48R2V C07K-1/16
Current ECLA ICO class: K61K-39:60P10

Canada
Publication No. CA 2693936 A1 (Update 201031 E)

Publication Date: 20090122

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: AVERANI G, IT

BELLUCCI C, IT

BERTI F, IT

BIGIO M, IT

NORELLI F, IT

Language: EN

Application: CA 2693936 A 20080717 (Local application)

WO 2008IB2690 A 20080717 (PCT Application)

CA 2693936 A 20100118 (PCT national entry)

Priority: GB 200713880 A 20070717

Related Publication: WO 2009010877 A (Based on OPI patent)

Original IPC: A61K-39/09(B,I,H,EP,20060101,20100319,A,L)

A61K-39/09(B,I,M,98,20060101,20100319,C)

A61K-47/48(B,I,H,EP,20060101,20100319,A,F)

A61K-47/48(B,I,M,98,20060101,20100319,C)

A61P-31/00(B,I,M,98,20060101,20100319,C)

A61P-31/04(B,I,H,EP,20060101,20100319,A,L)

B01D-15/00(B,I,H,EP,20060101,20100319,A,L)

B01D-15/00(B,I,M,98,20060101,20100319,C)

B01J-20/04(B,I,H,EP,20060101,20100319,A,L)

B01J-20/04(B,I,M,98,20060101,20100319,C)

Current IPC: A61K-39/09(B,I,H,EP,20060101,20100319,A,L)

A61K-39/09(B,I,H,EP,20100101,20100319,C,L)

A61K-47/48(B,I,H,EP,20060101,20100319,A,F)

A61K-47/48(B,I,H,EP,20100101,20100319,C,F)

A61P-31/00(B,I,H,EP,20100101,20100319,C,L)

A61P-31/04(B,I,H,EP,20060101,20100319,A,L)

B01D-15/00(B,I,H,EP,20060101,20100319,A,L)

B01D-15/00(B,I,H,EP,20100101,20100319,C,L)

B01J-20/04(B,I,H,EP,20060101,20100319,A,L)

B01J-20/04(B,I,H,EP,20100101,20100319,C,L)

Current ECLA class: A61K-39/09A A61K-47/48R2 A61K-47/48R2D A61K-47/48R2F

A61K-47/48R2V C07K-1/16

Current ECLA ICO class: K61K-39:60P10

China

Publication No. CN 101795713 A (Update 201058 E)

Publication Date: 20100804

Conjugate purification

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: BERTI F, CH

BERTI FRANCESCO, CH

BIGIO M, CH

BIGIO MASSIMO, CH

AVERANI G, CH

AVERANI GIOVANNI, CH

NORELLI F, CH

NORELLI FRANCESCO, CH

BELLUCCI C, CH

BELLUCCI CINZIA, CH

Language: ZH

Application: CN 200880106077 A 20080717 (Local application)

WO 2008IB2690 A 20080717 (PCT Application)

Priority: GB 200713880 A 20070717

Related Publication: WO 2009010877 A (Based on OPI patent)

Original IPC: A61K-39/09(I,CN,20060101,A,L) A61K-39/09(I,M,98,20060101,C)

A61K-47/48(I,CN,20060101,A,F) A61K-47/48(I,M,98,20060101,C)

A61P-31/00(I,M,98,20060101,C) A61P-31/04(I,CN,20060101,A,L)

B01D-15/00(I,CN,20060101,A,L) B01D-15/00(I,M,98,20060101,C)

B01J-20/04(I,CN,20060101,A,L) B01J-20/04(I,M,98,20060101,C)

Current IPC: A61K-39/09(B,I,H,CN,20060101,20100825,A,L)

A61K-39/09(B,I,H,CN,20100101,20100825,C,L)

A61K-47/48(B,I,H,CN,20060101,20100825,A,F)

A61K-47/48(B,I,H,CN,20100101,20100825,C,F)

A61P-31/00(B,I,H,CN,20100101,20100825,C,L)

A61P-31/04(B,I,H,CN,20060101,20100825,A,L)

B01D-15/00(B,I,H,CN,20060101,20100825,A,L)

B01D-15/00(B,I,H,CN,20100101,20100825,C,L)

B01J-20/04(B,I,H,CN,20060101,20100825,A,L)

B01J-20/04(B,I,H,CN,20100101,20100825,C,L)

Original Abstract: This application relates to methods for the purification of saccharide antigen-carrier protein conjugates. In particular, the invention provides a method for purifying saccharide antigen-carrier protein conjugates from free carrier protein, such as CRM197, using hydroxyapatite. The invention further relates to methods of preparing vaccines, using this method.

Claim: [CLAIM 1] A method of purifying saccharide antigen-carrier protein conjugates from a mixture, comprising contacting said mixture with hydroxyapatite and collecting the free saccharide antigen-carrier protein conjugates.

[CLAIM 2] The method according to claim 1, wherein said mixture comprises free carrier protein and saccharide antigen-carrier protein conjugates.

[CLAIM 3] The method according to claim 2, wherein the mixture further comprises other contaminant proteins.

[CLAIM 4] The method any one of foresaid claims, wherein the carrier protein is selected from tetanus toxoid, diphtheria toxoid, derivatives thereof, N. meningitidis outer membrane proteins, synthetic proteins, heat shock proteins, pertussis proteins, cytokines, lymphokines, hormones, growth factors, poly-epitope carriers, protein D of H. influenzae, pneumolysin, pneumococcal surface protein PspA, iron uptake proteins, toxin A or B from C. difficile and/or a poly epitope carrier such as N19.

[CLAIM 5] The method of any one according to claims 1-3, wherein said carrier protein is tetanus toxoid, diphtheria toxoid or derivatives thereof.

[CLAIM 6] The method according to claim 5, wherein said carrier protein is CRM197.

[CLAIM 7] The method any one of foresaid claims, wherein the saccharide antigen has a molecular weight of 50kDa or more.

[CLAIM 8] The method according to claim 7, wherein the saccharide antigen has a molecular weight of 5kDa or more.

[CLAIM 9] The method any one of foresaid claims, wherein the saccharide antigen is a bacterial capsular saccharide.

[CLAIM 10] The method any one of foresaid claims, wherein the saccharide antigen is glycosylated.

[CLAIM 11] The method any one of foresaid claims, wherein the saccharide antigen is from N. meningitidis, S.pneumoniae, S.agalactiae, E[Lambda]influenzae, P. aeruginosa, S. aureus, E.faecalis, E.faechim, Y.enterocolitica, V.cholerae or S. typhi.

[CLAIM 12] The method any one of foresaid claims, wherein the earner protein is conjugated to saccharide antigens from more than one bacterial species.

[CLAIM 13] The method any one of foresaid claims, wherein the saccharide antigen is conjugated to the carrier protein by a linker.

[CLAIM 14] The method any one of foresaid claims, wherein said method is carried out at pH6.5-pH7.5.

[CLAIM 15] The method any one of foresaid claims, wherein said method is carried out at pH7.2.

[CLAIM 16] The method any one of foresaid claims, wherein said method is carried out at a phosphate concentration of 50mM or less.

[CLAIM 17] The method any one of foresaid claims, wherein said hydroxy apatite is in the form of a gel.

[CLAIM 18] The method any one of foresaid claims, wherein said hydroxyapatite has a particle size of 40um or more.

[CLAIM 19] The method any one of foresaid claims, wherein said hydroxyapatite has a dynamic binding capacity of more than 10mg lysozyme per gram.

[CLAIM 20] A method of preparing a pharmaceutical composition, comprising the method any one of foresaid claims, and further comprising step iii) mixing said saccharide antigen-carrier protein conjugates obtained in step ii) with a pharmaceutically acceptable diluent or carrier

[CLAIM 21] The method according to claim 20, further comprising step (iv) mixing the product of step (iii) with an adjuvant.

[CLAIM 22] A pharmaceutical composition prepared by the method according to claim 20 or claim 21, for use (i) in therapy, (ii) for raising an immune response or (iii) as a vaccine.

[CLAIM 23] Use of a pharmaceutical composition prepared by the method according to claim 20 or claim 21 in the manufacture of a medicament for (i) raising an immune response, or (ii) treating a bacterial infection.

EPO

Publication No. EP 2180901 A2 (Update 201030 E)

Publication Date: 20100505

**KONJUGATREINIGUNG

CONJUGATE PURIFICATION

PURIFICATION DE CONJUGUES**

Assignee: Novartis AG, Lichtstrasse 35, 4056 Basel, CH (NOVS)

Inventor: AVERANI, Giovanni, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

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BIGIO, Massimo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

NORELLI, Francesco, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

Agent: Marshall, Cameron John, Carpmaels Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, GB

Language: EN

Application: EP 2008826340 A 20080717 (Local application)

WO 2008IB2690 A 20080717 (PCT Application)

Priority: GB 200713880 A 20070717

Related Publication: WO 2009010877 A (Based on OPI patent)

Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Original IPC: A61K-39/09(B,I,H,EP,20060101,20100224,A,L)

A61K-39/09(B,I,M,98,20060101,20100224,C)

A61K-47/48(B,I,H,EP,20060101,20100224,A,F)

A61K-47/48(B,I,M,98,20060101,20100224,C)

A61P-31/00(B,I,M,98,20060101,20100224,C)

A61P-31/04(B,I,H,EP,20060101,20100224,A,L)

B01D-15/00(B,I,H,EP,20060101,20100224,A,L)

B01D-15/00(B,I,M,98,20060101,20100224,C)

B01J-20/04(B,I,H,EP,20060101,20100224,A,L)

B01J-20/04(B,I,M,98,20060101,20100224,C)

Current IPC: A61K-39/09(B,I,H,EP,20060101,20100224,A,L)

A61K-39/09(B,I,H,EP,20100101,20100224,C,L)

A61K-47/48(B,I,H,EP,20060101,20100224,A,F)

A61K-47/48(B,I,H,EP,20100101,20100224,C,F)

A61P-31/00(B,I,H,EP,20100101,20100224,C,L)

A61P-31/04(B,I,H,EP,20060101,20100224,A,L)

B01D-15/00(B,I,H,EP,20060101,20100224,A,L)

B01D-15/00(B,I,H,EP,20100101,20100224,C,L)

B01J-20/04(B,I,H,EP,20060101,20100224,A,L)

B01J-20/04(B,I,H,EP,20100101,20100224,C,L)

Current ECLA ICO class: K61K-39:60P10

Original Abstract: This application relates to methods for the purification of saccharide antigen-carrier protein conjugates. In particular, the invention provides a method for purifying saccharide antigen- carrier protein conjugates from free carrier protein, such as CRM1 97, using hydroxyapatite. The invention further relates to methods of preparing vaccines, using this method.

United States

Publication No. US 20100239600 A1 (Update 201062 E)

Publication Date: 20100923

CONJUGATE PURIFICATION

Assignee: Novartis Vaccines and Diagnostics, Sienna, IT (NOVS)

Bigio, Massimo, Siena, IT Residence: IT

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Norelli, Francesco, Siena, IT Residence: IT

Berti, Francesco, Siena, IT Residence: IT

Bellucci, Cinzia, Siena, IT Residence: IT

Inventor: Bigio, Massimo, Siena, IT Residence: IT

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Bellucci, Cinzia, Siena, IT Residence: IT

Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY-

X100B, P.O. BOX 8097, Emeryville, CA, US

Language: EN

Application: US 2010669464 A 20100609 (Local application)

WO 2008IB2690 A 20080717 (PCT Application)

Priority: GB 200713880 A 20070717

Original IPC: A61K-39/385(B,I,H,US,20060101,20100923,A,F)

A61K-39/385(B,I,M,98,20060101,20100923,C)

A61P-31/00(B,I,M,98,20060101,20100923,C)

A61P-31/12(B,I,H,US,20060101,20100923,A,L)

A61P-37/00(B,I,H,US,20060101,20100923,A,L)

A61P-37/00(B,I,M,98,20060101,20100923,C)

C07K-1/00(B,I,M,98,20060101,20100923,C)

C07K-1/14(B,I,H,US,20060101,20100923,A,L)

Current IPC: A61K-39/385(B,I,H,US,20060101,20100923,A,F)

A61K-39/385(B,I,M,98,20060101,20100923,C)

A61P-31/00(B,I,M,98,20060101,20100923,C)

A61P-31/12(B,I,H,US,20060101,20100923,A,L)

A61P-37/00(B,I,H,US,20060101,20100923,A,L)

A61P-37/00(B,I,M,98,20060101,20100923,C)

C07K-1/00(B,I,M,98,20060101,20100923,C)

C07K-1/14(B,I,H,US,20060101,20100923,A,L)

Current ECLA class: A61K-39/09A A61K-47/48R2 A61K-47/48R2D A61K-47/48R2F

A61K-47/48R2V C07K-1/16

Current ECLA ICO class: K61K-39:60P10

Current US Class (main): 424-193100

Current US Class (secondary): 530-351000 530-399000 530-413000

Original US Class (main): 424193.1

Original US Class (secondary): 530413 530351 530399

Original Abstract: This application relates to methods for the purification of saccharide antigen-carrier protein conjugates. In particular, the invention provides a method for purifying saccharide antigen- carrier protein conjugates from free carrier protein, such as CRM1 97, using hydroxyapatite. The invention further relates to methods of preparing vaccines, using this method.

Claim:

1.

1. A method of purifying saccharide antigen-carrier protein conjugates from a mixture comprising free carrier protein and

saccharide antigen-carrier protein conjugates, comprising contacting said mixture with hydroxyapatite such that the carrier protein binds to the hydroxyapatite while the conjugates do not bind; and collecting the free saccharide antigen-carrier protein conjugates.

WIPO

Publication No. WO 2009010877 A2 (Update 200914 B)

Publication Date: 20090122

**CONJUGATE PURIFICATION

PURIFICATION DE CONJUGUES**

Assignee: ~(only US)~ BIGIO, Massimo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

~(only US)~ AVERANI, Giovanni, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

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~(only US)~ BELLUCCI, Cinzia, Novartis Vaccines, Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basel, CH Residence: CH Nationality: CH (NOVS)

Inventor: AVERANI, Giovanni, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

BELLUCCI, Cinzia, Novartis Vaccines, Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

BERTI, Francesco, Novartis Vaccines, Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

BIGIO, Massimo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

NORELLI, Francesco, Novartis Vaccines, Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John, Carpmaels Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, GB

Language: EN (54 pages, 8 drawings)

Application: WO 2008IB2690 A 20080717 (Local application)

Priority: GB 200713880 A 20070717

Designated States: (National Original) AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

Original IPC: C12N(99,20060101,S)

Current IPC: C12N(99,20060101,S)

Current ECLA class: A61K-39/09A A61K-47/48R2 A61K-47/48R2D A61K-47/48R2F A61K-47/48R2V C07K-1/16

Current ECLA ICO class: K61K-39:60P10

Original Abstract: This application relates to methods for the purification of saccharide antigen-carrier protein conjugates. In particular, the invention provides a method for purifying saccharide antigen-carrier protein conjugates from free carrier protein, such as CRM1 97, using hydroxyapatite. The invention further relates to methods of preparing vaccines, using this method.

L'invention concerne des procedes de purification de conjugues antigene saccharidique-proteine de support. L'invention concerne en particulier un procede de purification des conjugues antigene saccharidique-proteine de support d'une proteine de support libre, par

exemple CRM1 97, a l'aide d'hydroxyapatite. L'invention concerne également des methodes de preparation de vaccins a l'aide dudit procede.

Publication No. WO 2009010877 A3 (Update 200976 E)

Publication Date: 20091119

CONJUGATE PURIFICATION

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: AVERANI G, IT

BELLUCCI C, IT

BERTI F, IT

BIGIO M, IT

NORELLI F, IT

Language: EN

Application: WO 2008IB2690 A 20080717 (Local application)

Priority: GB 200713880 A 20070717

Designated States: (National Original) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM ST SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA
ZM ZW

(Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS
IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA
SD SL SZ TZ UG ZM ZW EA

Original IPC: A61K-39/09(B,I,H,EP,20060101,A,L)

A61K-39/09(B,I,M,98,20060101,C) A61K-47/48(B,I,H,EP,20060101,A,F)

A61K-47/48(B,I,M,98,20060101,C) A61P-31/00(B,I,M,98,20060101,C)

A61P-31/04(B,I,H,EP,20060101,A,L) B01D-15/00(B,I,H,EP,20060101,A,L)

B01D-15/00(B,I,M,98,20060101,C) B01J-20/04(B,I,H,EP,20060101,A,L)

B01J-20/04(B,I,M,98,20060101,C)

Current IPC: A61K-39/09(B,I,H,EP,20060101,20091119,A,L)

A61K-39/09(B,I,H,EP,20090101,20091119,C,L)

A61K-47/48(B,I,H,EP,20060101,20091119,A,F)

A61K-47/48(B,I,H,EP,20090101,20091119,C,F)

A61P-31/00(B,I,H,EP,20090101,20091119,C,L)

A61P-31/04(B,I,H,EP,20060101,20091119,A,L)

B01D-15/00(B,I,H,EP,20060101,20091119,A,L)

B01D-15/00(B,I,H,EP,20090101,20091119,C,L)

B01J-20/04(B,I,H,EP,20060101,20091119,A,L)

B01J-20/04(B,I,H,EP,20090101,20091119,C,L)

Current ECLA ICO class: K61K-39:60P10

Original Abstract: This application relates to methods for the purification of saccharide antigen-carrier protein conjugates. In particular, the invention provides a method for purifying saccharide antigen-carrier protein conjugates from free carrier protein, such as CRM1 97, using hydroxyapatite. The invention further relates to methods of preparing vaccines, using this method.

10/7/8 (Item 8 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0018544858

WPI ACC NO: 2009-A43254/200902

XRAM Acc No: C2009-020226

New kit comprises conjugates of Haemophilus influenzae type B (Hib) and
****Neisseria**** ****meningitidis**** ****capsular**** saccharides, useful
for preparing a vaccine for raising an immune response against meningitis

Patent Assignee: NOVARTIS AG (NOVS); CONTORNI M (CONT-I); COSTANTINO P
(COST-I)

Inventor: CONTORNI M; COSTANTINO P

Patent Family (9 patents, 122 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2008149238	A2	20081211	WO 2008IB2121	A	20080604	200902 E
WO 2008149238	A3	20090806	WO 2008IB2121	A	20080604	200952 E
AU 2008259423	A1	20081211	AU 2008259423	A	20080604	201002 E
EP 2152302	A2	20100217	EP 2008789070	A	20080604	201014 E
			WO 2008IB2121	A	20080604	
CA 2688268	A1	20081211	CA 2688268	A	20080604	201020 E
			WO 2008IB2121	A	20080604	
			CA 2688268	A	20091125	
CN 101678094	A	20100324	CN 200880018507	A	20080604	201024 E
			WO 2008IB2121	A	20080604	
MX 2009013112	A1	20100131	WO 2008IB2121	A	20080604	201028 E
			MX 200913112	A	20091202	
US 20100203137	A1	20100812	US 2007933235	P	20070604	201053 E
			WO 2008IB2121	A	20080604	
			US 2010451831	A	20100325	
JP 2010529103	W	20100826	WO 2008IB2121	A	20080604	201056 E
			JP 2010510910	A	20080604	

Priority Applications (no., kind, date): US 2007933235 P 20070604; US 2010451831 A 20100325

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
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WO 2008149238	A2	EN	28	0	
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National Designated States,Original: AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL NO OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

WO 2008149238	A3	EN			
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National Designated States,Original: AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW EA

AU 2008259423	A1	EN			Based on OPI patent WO 2008149238
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EP 2152302	A2	EN			PCT Application WO 2008IB2121
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Based on OPI patent WO 2008149238

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

CA 2688268	A1	EN			PCT Application WO 2008IB2121
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PCT national entry CA 2688268

Based on OPI patent WO 2008149238

CN 101678094	A	ZH			PCT Application WO 2008IB2121
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Based on OPI patent WO 2008149238

MX 2009013112	A1	ES			PCT Application WO 2008IB2121
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Based on OPI patent WO 2008149238

US 20100203137	A1	EN			Related to Provisional US 2007933235
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PCT Application WO 2008IB2121

JP 2010529103	W	JA	33		PCT Application WO 2008IB2121
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Based on OPI patent WO 2008149238

Alerting Abstract WO A2

NOVELTY - A kit comprising (i) an aqueous component, comprising a conjugate of a Hib *****capsular***** saccharide, and (ii) a lyophilized component, comprising a conjugate of a ~N. *****meningitidis***** ~ *****capsular***** saccharide, is new.

DESCRIPTION - INDEPENDENT CLAIMS are: (1) a method for preparing a combined vaccine by combining (i) an aqueous component, comprising a conjugate of a ~H. influenzae ~ type B (Hib) *****capsular***** saccharide, and (ii) a lyophilized component, comprising a conjugate of a ~N. *****meningitidis***** ~ *****capsular***** saccharide; (2) a combined vaccine comprising (i) a conjugate of a ~H. influenzae ~ type B *****capsular***** saccharide, and (ii) a conjugate of a ~N. *****meningitidis***** ~ *****capsular***** saccharide, prepared by combining an aqueous ~H. influenzae ~ conjugate and a lyophilized ~N. *****meningitidis***** ~ conjugate; (3) a vaccine comprising conjugates of *****capsular***** saccharides from two or more ~N. *****meningitidis***** ~ serogroups and from Hib, in an oil-in-water emulsion; (4) a kit, for preparing a vaccine, comprising (i) an oil-in-water emulsion component and (ii) a lyophilized component, comprising conjugated *****capsular***** saccharides from more than one serogroup of ~N. *****meningitidis***** ~ ; (5) a method for preparing a vaccine by combining (i) an oil-in-water emulsion component; and (ii) a lyophilized component comprising conjugates of *****capsular***** saccharides from more than one serogroup of ~N. *****meningitidis***** ~ ; (6) a vaccine comprising conjugates of ~N. *****meningitidis***** ~ *****capsular***** saccharides in an oil-in-water emulsion, prepared by combining an oil-in-water emulsion component and lyophilized conjugates of *****capsular***** saccharides from more than one serogroup of ~N. *****meningitidis***** ~ ; and (7) a method of raising an immune response in a patient by administering to the patient any of the vaccine above.

ACTIVITY - Immunostimulant; Neuroprotective. No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - The kit is useful for preparing a vaccine. The vaccine is useful for raising an immune response against meningitis (all claimed).

ADVANTAGE - The present invention provides improved vaccine formulations for Hib and meningococcal conjugates.

Technology Focus

BIOTECHNOLOGY - Preferred Kit/Vaccine/Method: The aqueous component includes an adjuvant or is unadjuvanted. The ~H. influenzae ~ conjugate is adsorbed to aluminum phosphate. Administration of the ~H. influenzae ~ conjugate results in an anti-polyribosylribitol phosphate (PRP) antibody concentration in a patient of $> 0.15 \mu\text{g/ml}$. The concentration of ~H. influenzae ~ conjugate in the aqueous component is $0.5\text{--}50 \mu\text{g/ml}$. The ~H. influenzae ~ saccharide is conjugated to a carrier protein selected from CRM197, tetanus toxoid, and the outer membrane complex of ~N. *****meningitidis***** ~ . The aqueous component comprises one or more of: a diphtheria toxoid, a tetanus toxoid, acellular pertussis antigen(s), inactivated poliovirus antigen(s), hepatitis B virus surface antigen, and/or pneumococcal saccharide. Administration of the ~N. *****meningitidis***** ~ conjugate(s) results in a bactericidal antibody response. The lyophilized component includes 2, 3, or 4 of meningococcal serogroups A, C, W135 and Y. The quantity of meningococcal *****capsular***** saccharide per serogroup is $1\text{--}20 \mu\text{g}$. The ~N. *****meningitidis***** ~ saccharide(s) is/are conjugated to a carrier protein selected from CRM197, diphtheria toxoid and tetanus toxoid. The lyophilized component includes *****capsular***** includes a stabilizer. The lyophilized component does not include a Hib saccharide. The vaccine includes one or more buffers. The vaccine comprises one or more of: a diphtheria toxoid, a tetanus toxoid, acellular pertussis antigen(s), inactivated poliovirus antigen(s), hepatitis B virus surface antigen, and/or pneumococcal saccharide.

Title Terms/Index Terms/Additional Words: NEW; KIT; COMPRISE; CONJUGATE;
HAEMOPHILUS; INFLUENZAE; TYPE; ****NEISSERIA****; ****MENINGITIDIS****;
CAPSULE; USEFUL; PREPARATION; VACCINE; RAISE; IMMUNE; RESPOND; MENINGITIS

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/095	A	I	F	B	20060101
A61K-0039/095	A	I	L	B	20060101
A61K-0039/102	A	I	F	B	20060101
A61K-0039/102	A	I	L	B	20060101
A61K-0039/116	A	I	L	B	20060101
A61K-0039/295	A	I	L	B	20060101
A61K-0039/39	A	I	L	B	20060101
A61K-0047/48	A	I	L	B	20060101
A61K-0009/107	A	I	F	B	20060101
A61K-0009/107	A	I	L	B	20060101
A61K-0009/19	A	I	L	B	20060101
A61P-0031/04	A	I	L	B	20060101
A61K-0039/095	C	I	F	B	20090101
A61K-0039/095	C	I		B	20060101
A61K-0039/102	C	I	L	B	20090101
A61K-0039/102	C	I		B	20060101
A61K-0039/116	C	I		B	20060101
A61K-0039/295	C	I	L	B	20100101
A61K-0039/39	C	I		B	20060101
A61K-0047/48	C	I	L	B	20090101
A61K-0009/107	C	I	F	B	20100101
A61K-0009/107	C	I	L	B	20090101
A61K-0009/19	C	I	L	B	20090101
A61P-0031/00	C	I		B	20060101
C12N	S				20060101

ECLA: A61K-039/095, A61K-039/102, A61K-039/116, A61K-047/48R2V

ICO: K61K-039:545

US Classification, Current Main: 424-484000; Secondary: 424-201100

US Classification, Issued: 424484, 424201.1

JP Classification

FI Term	Facet	Rank	Type
A61K-039/102	A	main	
A61K-039/095	B	secondary	
A61K-039/116	B	secondary	
A61K-039/39	B	secondary	
A61P-031/04	B	secondary	
A61K-039/095			
A61K-039/102			
A61K-039/116			
A61K-039/39			
A61P-031/04			

F-Term	View Point	Additional
Theme	+ Figure	Code

4C085

4C201

4C085 AA03

4C085 AA04

4C085 AA38

4C085 BA16

4C085 BA18

4C085 EE03

4C085 EE06

4C085 FF01

4C085 FF19
4C085 GG01

File Segment: CPI

DWPI Class: B04; D16

Manual Codes (CPI/A-M): B04-B04C1; B04-C02F; B04-N03; B14-A01; B14-G01;
B14-N16; B14-S11B1; D05-H07

Original Publication Data by Authority

Australia

Publication No. AU 2008259423 A1 (Update 201002 E)

Publication Date: 20081211

Assignee: NOVARTIS AG (NOVS)

Inventor: CONTORNI M

COSTANTINO P

Language: EN

Application: AU 2008259423 A 20080604 (Local application)

Priority: US 2007933235 P 20070604

Related Publication: WO 2008149238 A (Based on OPI patent)

Original IPC: A61K-39/095(B,I,H,EP,20060101,20090806,A,F)

A61K-39/102(B,I,H,EP,20060101,20090806,A,L)

A61K-47/48(B,I,H,EP,20060101,20090806,A,L)

A61K-9/107(B,I,H,EP,20060101,20090806,A,L)

A61K-9/19(B,I,H,EP,20060101,20090806,A,L)

Current IPC: A61K-39/095(B,I,H,EP,20060101,20090806,A,F)

A61K-39/102(B,I,H,EP,20060101,20090806,A,L)

A61K-47/48(B,I,H,EP,20060101,20090806,A,L)

A61K-9/107(B,I,H,EP,20060101,20090806,A,L)

A61K-9/19(B,I,H,EP,20060101,20090806,A,L)

Current ECLA class: A61K-39/095 A61K-39/102 A61K-39/116 A61K-47/48R2V

Current ECLA ICO class: K61K-39:545

Canada

Publication No. CA 2688268 A1 (Update 201020 E)

Publication Date: 20081211

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: CONTORNI M, IT

COSTANTINO P, IT

Language: EN

Application: CA 2688268 A 20080604 (Local application)

WO 2008IB2121 A 20080604 (PCT Application)

CA 2688268 A 20091125 (PCT national entry)

Priority: US 2007933235 P 20070604

Related Publication: WO 2008149238 A (Based on OPI patent)

Original IPC: A61K-39/095(B,I,H,EP,20060101,20090806,A,F)

A61K-39/095(B,I,M,98,20060101,20090806,C)

A61K-39/102(B,I,H,EP,20060101,20090806,A,L)

A61K-39/102(B,I,M,98,20060101,20090806,C)

A61K-47/48(B,I,H,EP,20060101,20090806,A,L)

A61K-47/48(B,I,M,98,20060101,20090806,C)

A61K-9/107(B,I,H,EP,20060101,20090806,A,L)

A61K-9/107(B,I,M,98,20060101,20090806,C)

A61K-9/19(B,I,H,EP,20060101,20090806,A,L)

A61K-9/19(B,I,M,98,20060101,20090806,C)

Current IPC: A61K-39/095(B,I,H,EP,20060101,20090806,A,F)

A61K-39/095(B,I,H,EP,20090101,20090806,C,F)

A61K-39/102(B,I,H,EP,20060101,20090806,A,L)

A61K-39/102(B,I,H,EP,20090101,20090806,C,L)

A61K-47/48(B,I,H,EP,20060101,20090806,A,L)

A61K-47/48(B,I,H,EP,20090101,20090806,C,L)

A61K-9/107(B,I,H,EP,20060101,20090806,A,L)

A61K-9/107(B,I,H,EP,20090101,20090806,C,L)

A61K-9/19(B,I,H,EP,20060101,20090806,A,L)

A61K-9/19(B,I,H,EP,20090101,20090806,C,L)

Current ECLA class: A61K-39/095 A61K-39/102 A61K-39/116 A61K-47/48R2V

Current ECLA ICO class: K61K-39:545

China

Publication No. CN 101678094 A (Update 201024 E)

Publication Date: 20100324

Formulation of meningitis vaccines

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: CONTORNI M, CH

CONTORNI MARIO, CH

COSTANTINO P, CH

COSTANTINO PAOLO, CH

Language: ZH

Application: CN 200880018507 A 20080604 (Local application)

WO 2008IB2121 A 20080604 (PCT Application)

Priority: US 2007933235 P 20070604

Related Publication: WO 2008149238 A (Based on OPI patent)

Original IPC: A61K-39/095(I,CN,20060101,A,F) A61K-39/095(I,M,98,20060101,C)

A61K-39/102(I,CN,20060101,A,L) A61K-39/102(I,M,98,20060101,C)

A61K-47/48(I,CN,20060101,A,L) A61K-47/48(I,M,98,20060101,C)

A61K-9/107(I,CN,20060101,A,L) A61K-9/107(I,M,98,20060101,C)

A61K-9/19(I,CN,20060101,A,L) A61K-9/19(I,M,98,20060101,C)

Current IPC: A61K-39/095(B,I,H,CN,20060101,20100325,A,F)

A61K-39/095(B,I,H,CN,20100101,20100325,C,F)

A61K-39/102(B,I,H,CN,20060101,20100325,A,L)

A61K-39/102(B,I,H,CN,20100101,20100325,C,L)

A61K-47/48(B,I,H,CN,20060101,20100325,A,L)

A61K-47/48(B,I,H,CN,20100101,20100325,C,L)

A61K-9/107(B,I,H,CN,20060101,20100325,A,L)

A61K-9/107(B,I,H,CN,20100101,20100325,C,L)

A61K-9/19(B,I,H,CN,20060101,20100325,A,L)

A61K-9/19(B,I,H,CN,20100101,20100325,C,L)

Current ECLA class: A61K-39/095 A61K-39/102 A61K-39/116 A61K-47/48R2V

Current ECLA ICO class: K61K-39:545

Original Abstract: A liquid Hib component is utilized to reconstitute a lyophilised meningococcal component, thereby producing a combined meningitis vaccine. A lyophilised meningococcal component can also be reconstituted with an oil-in-water emulsion.

Claim: [CLAIM 1] A kit, comprising: (i) an aqueous component, comprising a conjugate of a Haemophilus influenzae type B capsular saccharide; and (ii) a lyophilised component, comprising a conjugate of a Neisseria meningitidis capsular saccharide.

[CLAIM 2] A method for preparing a combined vaccine, comprising the step of combining (i) an aqueous component, comprising a conjugate of a Haemophilus influenzae type B capsular saccharide, and (ii) a lyophilised component, comprising a conjugate of a Neisseria meningitidis capsular saccharide.

[CLAIM 3] A combined vaccine, comprising: (i) a conjugate of a Haemophilus influenzae type B capsular saccharide; and (ii) a conjugate of a Neisseria meningitidis capsular saccharide, prepared by combining an aqueous H.influenzae conjugate and a lyophilised N. meningitidis conjugate.

[CLAIM 4] The kit, method or vaccine according to any one of above claims, wherein the aqueous component includes an adjuvant.

[CLAIM 5] The kit, method or vaccine according to any one of above claims, wherein the H.influenzae conjugate is adsorbed to aluminium phosphate.

- [CLAIM 6] The kit, method or vaccine of any one of claims 1 to 3, wherein the aqueous component is unadjuvanted.
- [CLAIM 7] A vaccine comprising conjugates of capsular saccharides from two or more *Neisseria meningitidis* serogroups and from *Haemophilus influenzae* type B, in an oil-in-water emulsion.
- [CLAIM 8] The kit, method or vaccine according to any one of above claims, wherein administration of the *H. influenzae* conjugate results in an anti-PRP antibody concentration in a patient of more than 0.15 micrograms/ml.
- [CLAIM 9] The kit, method or vaccine according to any one of above claims, wherein the concentration of *H. influenzae* conjugate in the aqueous component is in the range of 0.5 micrograms/ml to 50 micrograms/ml.
- [CLAIM 10] The kit, method or vaccine according to any one of above claims, wherein the *H. influenzae* saccharide is conjugated to a carrier protein selected from the group consisting of CRM1 97, tetanus toxoid, and the outer membrane complex of *N. meningitidis*.
- [CLAIM 11] The kit or method according to any one of above claims, wherein the aqueous component comprises one or more of: a diphtheria toxoid, a tetanus toxoid, acellular pertussis antigen(s), inactivated poliovirus antigen(s), hepatitis B virus surface antigen, and/or pneumococcal saccharide.
- [CLAIM 12] A kit for preparing a vaccine, the kit comprising: (i) an oil-in-water emulsion component; and (ii) a lyophilised component, comprising conjugated capsular saccharides from more than one serogroup of *Neisseria meningitidis*.
- [CLAIM 13] A method for preparing a vaccine, comprising the step of combining: (i) an oil-in-water emulsion component; and (ii) a lyophilised component comprising conjugates of capsular saccharides from more than one serogroup of *Neisseria meningitidis*.
- [CLAIM 14] A vaccine comprising conjugates of *Neisseria meningitidis* capsular saccharides in an oil-in-water emulsion, prepared by combining an oil-in-water emulsion component and lyophilised conjugates of capsular saccharides from more than one serogroup of *N. meningitidis*.
- [CLAIM 15] The kit, method or vaccine according to any one of above claims, wherein administration of the *N. meningitidis* conjugate(s) results in a bactericidal antibody response.
- [CLAIM 16] The kit, method or vaccine according to any one of above claims, wherein the lyophilised component includes 2, 3, or 4 of meningococcal serogroups A, C, W135 and Y.
- [CLAIM 17] The kit, method or vaccine of claim 16, wherein the lyophilised component includes capsular saccharides from each of meningococcal serogroups A, C, W135 and Y.
- [CLAIM 18] The kit, method or vaccine of claim 17, wherein the quantity of meningococcal capsular saccharide per serogroup is between 1 micrograms and 20 micrograms.
- [CLAIM 19] The kit, method or vaccine according to any one of above claims, wherein the *N. meningitidis* saccharide(s) is/are conjugated to a carrier protein selected from the group consisting of CRM1 97, diphtheria toxoid and tetanus toxoid.
- [CLAIM 20] The kit, method or vaccine of claim 16, wherein the lyophilised component includes capsular includes a stabiliser.
- [CLAIM 21] The kit, method or vaccine according to any one of above claims, wherein the lyophilised component includes an adjuvant.
- [CLAIM 22] The kit, method or vaccine of any one of claims 1 to 20, wherein the lyophilised component includes no adjuvant.
- [CLAIM 23] The kit, method or vaccine according to any one of above claims, wherein the lyophilised component does not include a Hib saccharide.
- [CLAIM 24] The vaccine according to any one of above claims, including one or more buffers.
- [CLAIM 25] The vaccine according to any one of above claims, wherein the

vaccine comprises one or more of: a diphtheria toxoid, a tetanus toxoid, acellular pertussis antigen(s), inactivated poliovirus antigen(s), hepatitis B virus surface antigen, and/or pneumococcal saccharide.

[CLAIM 26] A method of raising an immune response in a patient, comprising the step of administering to the patient a vaccine according to any one of above claims.

EPO

Publication No. EP 2152302 A2 (Update 201014 E)

Publication Date: 20100217

**FORMULIERUNG EINES IMPFSTOFFES GEGEN MENINGITIS

FORMULATION OF MENINGITIS VACCINES

FORMULATION DE VACCINS CONTRE LA MENINGITE**

Assignee: Novartis AG, Lichtstrasse 35, 4056 Basel, CH (NOVS)

Inventor: COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

CONTORNI, Mario, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT

Agent: Marshall, Cameron John, Carpmaels Ransford, 43-45 Bloomsbury

Square, London WC1A 2RA, GB

Language: EN

Application: EP 2008789070 A 20080604 (Local application)

WO 2008IB2121 A 20080604 (PCT Application)

Priority: US 2007933235 P 20070604

Related Publication: WO 2008149238 A (Based on OPI patent)

Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

Original IPC: A61K-39/095(B,I,H,EP,20060101,20091217,A,F)

A61K-39/095(B,I,M,98,20060101,20091217,C)

A61K-39/102(B,I,H,EP,20060101,20091217,A,L)

A61K-39/102(B,I,M,98,20060101,20091217,C)

A61K-47/48(B,I,H,EP,20060101,20091217,A,L)

A61K-47/48(B,I,M,98,20060101,20091217,C)

A61K-9/107(B,I,H,EP,20060101,20091217,A,L)

A61K-9/107(B,I,M,98,20060101,20091217,C)

A61K-9/19(B,I,H,EP,20060101,20091217,A,L)

A61K-9/19(B,I,M,98,20060101,20091217,C)

Current IPC: A61K-39/095(B,I,H,EP,20060101,20091217,A,F)

A61K-39/095(B,I,H,EP,20100101,20091217,C,F)

A61K-39/102(B,I,H,EP,20060101,20091217,A,L)

A61K-39/102(B,I,H,EP,20100101,20091217,C,L)

A61K-47/48(B,I,H,EP,20060101,20091217,A,L)

A61K-47/48(B,I,H,EP,20100101,20091217,C,L)

A61K-9/107(B,I,H,EP,20060101,20091217,A,L)

A61K-9/107(B,I,H,EP,20100101,20091217,C,L)

A61K-9/19(B,I,H,EP,20060101,20091217,A,L)

A61K-9/19(B,I,H,EP,20100101,20091217,C,L)

Current ECLA ICO class: K61K-39:545

Original Abstract: A liquid Hib component is used to reconstitute a lyophilised meningococcal component, thereby producing a combined meningitis vaccine. A lyophilised meningococcal component can also be reconstituted with an oil-in-water emulsion.

Japan

Publication No. JP 2010529103 W (Update 201056 E)

Publication Date: 20100826

Language: JA (33 pages)

Application: JP 2010510910 A 20080604 (Local application)

WO 2008IB2121 A 20080604 (PCT Application)

Priority: US 2007933235 P 20070604

Related Publication: WO 2008149238 A (Based on OPI patent)

Original IPC: A61K-39/095(B,I,H,JP,20060101,20100730,A,L)

A61K-39/095 (B, I, M, 98, 20060101, 20100730, C)
A61K-39/102 (B, I, H, JP, 20060101, 20100730, A, F)
A61K-39/102 (B, I, M, 98, 20060101, 20100730, C)
A61K-39/116 (B, I, H, JP, 20060101, 20100730, A, L)
A61K-39/116 (B, I, M, 98, 20060101, 20100730, C)
A61K-39/39 (B, I, H, JP, 20060101, 20100730, A, L)
A61K-39/39 (B, I, M, 98, 20060101, 20100730, C)
A61P-31/00 (B, I, M, 98, 20060101, 20100730, C)
A61P-31/04 (B, I, H, JP, 20060101, 20100730, A, L)
Current IPC: A61K-39/095 (B, I, H, JP, 20060101, 20100730, A, L)
A61K-39/095 (B, I, M, 98, 20060101, 20100730, C)
A61K-39/102 (B, I, H, JP, 20060101, 20100730, A, F)
A61K-39/102 (B, I, M, 98, 20060101, 20100730, C)
A61K-39/116 (B, I, H, JP, 20060101, 20100730, A, L)
A61K-39/116 (B, I, M, 98, 20060101, 20100730, C)
A61K-39/39 (B, I, H, JP, 20060101, 20100730, A, L)
A61K-39/39 (B, I, M, 98, 20060101, 20100730, C)
A61P-31/00 (B, I, M, 98, 20060101, 20100730, C)
A61P-31/04 (B, I, H, JP, 20060101, 20100730, A, L)
Current ECLA class: A61K-39/095 A61K-39/102 A61K-39/116 A61K-47/48R2V
Current ECLA ICO class: K61K-39:545
Current JP FI-Terms: A61K-39/102 (main, A) A61K-39/095 (secondary, B)
A61K-39/116 (secondary, B) A61K-39/39 (secondary, B) A61P-31/04
(secondary, B) A61K-39/095 A61K-39/102 A61K-39/116 A61K-39/39
A61P-31/04
Current JP F-Terms: 4C085 4C201 4C085AA03 4C085AA04 4C085AA38 4C085BA16
4C085BA18 4C085EE03 4C085EE06 4C085FF01 4C085FF19 4C085GG01

Mexico

Publication No. MX 2009013112 A1 (Update 201028 E)
Publication Date: 20100131
Assignee: NOVARTIS AG (NOVS)
Inventor: CONTORNI M
COSTANTINO P
Language: ES
Application: MX 200913112 A 20091202 (Local application)
WO 2008IB2121 A 20080604 (PCT Application)
Priority: US 2007933235 P 20070604
Related Publication: WO 2008149238 A (Based on OPI patent)
Original IPC: A61K-39/095 (I, MX, 20060101, A, F) A61K-39/095 (I, M, 98, 20060101, C)
A61K-9/107 (I, MX, 20060101, A, L) A61K-9/107 (I, M, 98, 20060101, C)
A61K-9/19 (I, MX, 20060101, A, L) A61K-9/19 (I, M, 98, 20060101, C)
Current IPC: A61K-39/095 (B, I, H, MX, 20100101, 20060101, C, F)
A61K-9/107 (B, I, H, MX, 20100101, 20060101, C, L)
A61K-9/19 (B, I, H, MX, 20100101, 20060101, C, L)
Current ECLA class: A61K-39/095 A61K-39/102 A61K-39/116 A61K-47/48R2V
Current ECLA ICO class: K61K-39:545

United States

Publication No. US 20100203137 A1 (Update 201053 E)
Publication Date: 20100812
FORMULATION OF MENINGITIS VACCINES
Assignee: Contorni, Mario, Siena, IT Residence: IT (CONT-I)
Costantino, Paolo, Colle Val d'Elsa, IT Residence: IT (COST-I)
Inventor: CONTORNI M, IT
Costantino, Paolo, Colle Val d'Elsa, IT Residence: IT
Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY-
X100B, P.O. BOX 8097, Emeryville, CA, US
Language: EN
Application: US 2010451831 A 20100325 (Local application)
WO 2008IB2121 A 20080604 (PCT Application)
US 2007933235 P 20070604 (Related to Provisional)

Original IPC: A61K-39/295(B,I,H,US,20060101,20100812,A,L)
A61K-39/295(B,I,M,98,20060101,20100812,C)
A61K-9/107(B,I,H,US,20060101,20100812,A,F)
A61K-9/107(B,I,M,98,20060101,20100812,C)
Current IPC: A61K-39/295(B,I,H,US,20060101,20100812,A,L)
A61K-39/295(B,I,H,US,20100101,20100812,C,L)
A61K-9/107(B,I,H,US,20060101,20100812,A,F)
A61K-9/107(B,I,H,US,20100101,20100812,C,F)
Current ECLA class: A61K-39/095 A61K-39/102 A61K-39/116 A61K-47/48R2V
Current ECLA ICO class: K61K-39:545
Current US Class (main): 424-484000
Current US Class (secondary): 424-201100
Original US Class (main): 424484
Original US Class (secondary): 424201.1
Original Abstract: A liquid Hib component is used to reconstitute a lyophilised meningococcal component, thereby producing a combined meningitis vaccine. A lyophilised meningococcal component can also be reconstituted with an oil-in-water emulsion.
Claim:
1.
1. A kit comprising: (i) an aqueous component, comprising a conjugate of a ~Haemophilus influenzae~ type B capsular saccharide; and (ii) a lyophilised component, comprising a conjugate of a ~Neisseria meningitidis~ capsular saccharide.

WIPO

Publication No. WO 2008149238 A2 (Update 200902 B)
Publication Date: 20081211
**FORMULATION OF MENINGITIS VACCINES
FORMULATION DE VACCINS CONTRE LA MENINGITE**
Assignee: ~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basel, CH Residence: CH Nationality: CH (NOVS)
~(only US)~ CONTORNI, Mario, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT
~(only US)~ COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT
Inventor: COSTANTINO, Paolo, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT
CONTORNI, Mario, Novartis Vaccines, Via Fiorentina 1, I-53100 Siena, IT
Agent: MARSHALL, Cameron, John, Carpmaels Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, GB
Language: EN (28 pages, 0 drawings)
Application: WO 2008IB2121 A 20080604 (Local application)
Priority: US 2007933235 P 20070604
Designated States: (National Original) AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL NO OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW
Original IPC: C12N(99,20060101,S)
Current IPC: C12N(99,20060101,S)
Current ECLA ICO class: K61K-39:545
Original Abstract: A liquid Hib component is used to reconstitute a lyophilised meningococcal component, thereby producing a combined meningitis vaccine. A lyophilised meningococcal component can also be reconstituted with an oil-in-water emulsion.
Un composant liquide Hib est utilise pour reconstituer un composant a meningocoques lyophilise, afin de produire un vaccin combine contre la

meningite. Le composant a meningocoques lyophilise peut aussi etre reconstitue a l'aide d'une emulsion huile dans l'eau.

Publication No. WO 2008149238 A3 (Update 200952 E)

Publication Date: 20090806

FORMULATION OF MENINGITIS VACCINES

Assignee: NOVARTIS AG; CH (NOVS)

Inventor: CONTORNI M, IT

COSTANTINO P, IT

Language: EN

Application: WO 2008IB2121 A 20080604 (Local application)

Priority: US 2007933235 P 20070604

Designated States: (National Original) AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM
ZW

(Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS
IT LT LU LV MC MT NL NO PL PT RO SE SI SK TR OA BW GH GM KE LS MW MZ NA
SD SL SZ TZ UG ZM ZW EA

Original IPC: A61K-39/095(B,I,H,EP,20060101,A,F)

A61K-39/095(B,I,M,98,20060101,C) A61K-39/102(B,I,H,EP,20060101,A,L)

A61K-39/102(B,I,M,98,20060101,C) A61K-47/48(B,I,H,EP,20060101,A,L)

A61K-47/48(B,I,M,98,20060101,C) A61K-9/107(B,I,H,EP,20060101,A,L)

A61K-9/107(B,I,M,98,20060101,C) A61K-9/19(B,I,H,EP,20060101,A,L)

A61K-9/19(B,I,M,98,20060101,C)

Current IPC: A61K-39/095(B,I,H,EP,20060101,20090806,A,F)

A61K-39/095(B,I,H,EP,20090101,20090806,C,F)

A61K-39/102(B,I,H,EP,20060101,20090806,A,L)

A61K-39/102(B,I,H,EP,20090101,20090806,C,L)

A61K-47/48(B,I,H,EP,20060101,20090806,A,L)

A61K-47/48(B,I,H,EP,20090101,20090806,C,L)

A61K-9/107(B,I,H,EP,20060101,20090806,A,L)

A61K-9/107(B,I,H,EP,20090101,20090806,C,L)

A61K-9/19(B,I,H,EP,20060101,20090806,A,L)

A61K-9/19(B,I,H,EP,20090101,20090806,C,L)

Current ECLA ICO class: K61K-39:545

Original Abstract: A liquid Hib component is used to reconstitute a lyophilised meningococcal component, thereby producing a combined meningitis vaccine. A lyophilised meningococcal component can also be reconstituted with an oil-in-water emulsion.

10/7/9 (Item 9 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0018017019 - Drawing available

WPI ACC NO: 2008-J37344/200854

XRAM Acc No: C2008-304663

Novel modified *****capsular***** saccharide, useful as medicament for preventing or treating disease e.g. bacterial meningitis caused by capsulate bacteria

Patent Assignee: NOVARTIS AG (NOVS); BARDOTTI A (BARD-I); BERTI F

(BERT-I); COSTANTINO P (COST-I); PIANIGIANI A (PIAN-I)

Inventor: BARDOTTI A; BERTI F; COSTANTINO P; PIANIGIANI A

Patent Family (9 patents, 122 countries)

Patent

Application

Number	Kind	Date	Number	Kind	Date	Update
WO 2008084411	A2	20080717	WO 2008IB1116	A	20080111	200854 B
WO 2008084411	A3	20081224				200903 E

AU 2008204259	A1	20080717	AU 2008204259	A	20080111	200954	E
CA 2674228	A1	20080717	CA 2674228	A	20080111	200974	E
			WO 2008IB1116	A	20080111		
			CA 2674228	A	20090630		
EP 2118145	A2	20091118	EP 2008737594	A	20080111	200976	E
			WO 2008IB1116	A	20080111		
CN 101583629	A	20091118	CN 200880002201	A	20080111	200978	E
			WO 2008IB1116	A	20080111		
MX 2009007415	A1	20090930	WO 2008IB1116	A	20080111	201007	E
			MX 20097415	A	20090709		
JP 2010515718	W	20100513	WO 2008IB1116	A	20080111	201032	E
			JP 2009545256	A	20080111		
US 20100322958	A1	20101223	WO 2008IB1116	A	20080111	201101	E
			US 2009448709	A	20091106		

Priority Applications (no., kind, date): GB 2007562 A 20070111

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
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WO 2008084411	A2	EN	84	9		
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National Designated States,Original: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM
ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES
FI FR GB GH GM GR HR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL NO OA
PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

WO 2008084411	A3	EN
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National Designated States,Original: AE AG AL AM AO AT AU AZ BA BB BG BH
BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE
GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT
LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS
RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM
ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES
FI FR GB GH GM GR HR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL NO OA
PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

AU 2008204259	A1	EN	Based on OPI patent	WO 2008084411
CA 2674228	A1	EN	PCT Application	WO 2008IB1116

			PCT national entry	CA 2674228
			Based on OPI patent	WO 2008084411

EP 2118145	A2	EN	PCT Application	WO 2008IB1116
			Based on OPI patent	WO 2008084411

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT RO SE SI SK TR

CN 101583629	A	ZH	PCT Application	WO 2008IB1116
			Based on OPI patent	WO 2008084411

MX 2009007415	A1	ES	PCT Application	WO 2008IB1116
			Based on OPI patent	WO 2008084411

JP 2010515718	W	JA	74	PCT Application	WO 2008IB1116
				Based on OPI patent	WO 2008084411

US 20100322958	A1	EN		PCT Application	WO 2008IB1116
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Alerting Abstract WO A2

NOVELTY - A modified *****capsular***** saccharide, comprising a blocking group at a hydroxyl group position on monosaccharide units of the corresponding native *****capsular***** saccharide, is new.

DESCRIPTION - A modified *****capsular***** saccharide comprising a blocking group at a hydroxyl group position on monosaccharide units of the corresponding native *****capsular***** saccharide, where the blocking group

is of formula: -O-X-Y (Ia), -O-R 1 (Ib), is new.

X= C(O), S(O) or SO₂ ;

Y= NR₁ R₂ or R₃ ;

R₁ = 1-6C alkyl substituted with
hydroxyl, sulfhydryl and amine;

R₂ = H or 1-6C alkyl;and

R₃ = 1-6C alkyl.

INDEPENDENT CLAIMS are included for the following: (1) saccharide of formula (I); (2) modifying a ****capsular**** saccharide, involves providing ****capsular**** saccharide having hydroxyl group on a monosaccharide unit, and converting the hydroxyl group into a blocking group; (3) modifying ~N.****meningitidis**** ~ serogroup A ****polysaccharide****, involves (a) providing a native ~N. ****meningitidis**** ~ serogroup A ****polysaccharide****, depolymerizing and sizing the ****polysaccharide**** to provide an oligosaccharide, and converting at least one hydroxyl group of the oligosaccharide into a blocking group, or (b) providing a native ~N.****meningitidis**** ~ serogroup A ****polysaccharide****, converting hydroxyl group of ****polysaccharide**** into a blocking group, and depolymerizing and sizing the resulting ****polysaccharide****; (4) preparing the modified ****capsular**** saccharide is a total synthesis process; (5) modified ****capsular**** saccharide obtained by the above method; (6) saccharide-protein conjugate of a modified saccharide; (7) making a saccharide-protein conjugate, involves (a) providing a modified ****capsular**** saccharide, and conjugating the modified ****capsular**** saccharide to a protein through the terminal anomeric hydroxyl group or the amino group derived from a terminal anomeric hydroxyl group, or (b) providing a modified ****capsular**** saccharide, converting the pairs of vicinal hydroxyl groups into aldehyde groups by oxidative cleavage, and linking the modified ****capsular**** saccharide to a protein by reductive amination; (8) saccharide-protein conjugate of modified saccharide obtained by above method; (9) molecule comprising a saccharide moiety of formula (I); and (10) pharmaceutical composition comprising a modified saccharide and/or saccharide-protein conjugate and/or molecule, and a carrier.

In formula (I), T= group of formulae (A) or (B), or In formula (I) contained in the molecule, T=group of formulae (C) or (D);

n= 1-100, preferably 15-25;

Z= OH, OAc or blocking group;

Q= OH, OAc or blocking group;

V= -NH₂ , -NHE, -NE₁ E₂ , W₂ , or -O-D;

E, E₁ , E₂ = nitrogen protecting groups, which may be same or different;

D= oxygen protecting group;

W, W₁ , W₂ = -OH or blocking group;

Z, Q= OH or blocking groups of formula
-O-X-Y' (IIa) or -O-R⁴ (IIb);

L= O, NH, NE, S or Se;

Y'= NR² R⁴ ;

R² = H or 1-6C alkyl; and

R⁴ = 1-4C alkylene-CH(O) or -1-5C
alkylene-NH-.

 ACTIVITY - Antibacterial;
Neuroprotective. No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - The modified saccharide, conjugate or molecule is useful as a
medicament for preventing or treating a disease caused by one or more
capsulate bacteria. The disease is bacterial meningitis (all claimed).

ADVANTAGE - The modified *****capsular***** saccharide has improved
stability to hydrolysis.

Technology Focus

BIOTECHNOLOGY - Preparation (claimed): The modified *****capsular*****
saccharide is produced by total synthesis process, by forming glycosidic
linkages between two or more monosaccharide units. Preferred Components:
The saccharide comprises blocking group of formula (Ia). The ratio of
blocking groups in the saccharide is 90:10. At least 10% of the
monosaccharide units of the saccharide have blocking groups. The
monosaccharide units of the saccharide have blocking groups. The
corresponding native *****capsular***** saccharide comprises monosaccharide
units linked by phosphodiester bonds. The corresponding native
*****capsular***** saccharide is ~*****Neisseria***** meningitidis ~ serogroup
A saccharide. The blocking group is 4- and/or 3-positions of the
corresponding ~N.*****meningitidis***** ~ serogroup A saccharide. The
blocking group is 4-positions of the corresponding ~N.*****meningitidis*****
~ serogroup A saccharide. The modified *****capsular***** saccharide is an
oligosaccharide. The modified saccharide comprises a terminal anomeric
hydroxyl group or an amino group derived from a terminal anomeric hydroxyl
group. The monosaccharide unit of the modified *****capsular***** saccharide,
where two vicinal hydroxyl groups of the corresponding native
*****capsular***** saccharide do not comprise blocking groups. The
monosaccharide units of the saccharide comprise blocking groups, where R¹
is substituted with two vicinal hydroxyl groups. At least 1% of the Q
groups are blocking groups. The blocking group is -OC(O)NR¹ R² .
Preferred Method: The converting step involves reacting the
*****capsular***** saccharide with a bifunctional reagent in an organic
solvent, and reacting the product of reacting step with an amino compound
of formula: HNR¹ R² . The blocking group is -OC(O)R³ and reacting the
*****capsular***** saccharide with [R³ C(O)]₂ O in the presence of an
imidazole catalyst. The *****capsular***** saccharide is *****capsular*****
oligosaccharide. The *****capsular***** oligosaccharide is obtained by
depolymerizing and sizing the corresponding native *****capsular*****
*****polysaccharide*****. The *****capsular***** saccharide in the providing
step is a native *****capsular*****polysaccharide***** and the method

further involves in which the product of converting step is sized, thus providing a modified *****capsular***** oligosaccharide. The vicinal hydroxyl groups present in the blocking groups are converted into aldehyde groups in converting step. The conditions for oxidative cleavage are proportion of the vicinal hydroxyl groups present in the blocking groups are converted into aldehyde groups in converting step. Preferred Conjugate: The protein is bacterial toxin or toxoid. The bacterial toxin or toxoid is diphtheria toxin or toxoid. The bacterial toxin or toxoid is CRM 197. Preferred Composition: The pharmaceutical composition further comprises saccharide antigen from one or more of serogroups C/W135 and Y of ~N.

*****meningitidis***** ~ , the saccharide optionally being an oligosaccharide and optionally being conjugated to a carrier protein. The composition further comprises a vaccine adjuvant. The adjuvant is an aluminum phosphate. The composition is a vaccine against a disease caused by ~N. *****meningitidis ~ *****.

Title Terms/Index Terms/Additional Words: NOVEL; MODIFIED; CAPSULE; SACCHARIDE; USEFUL; MEDICAMENT; PREVENT; TREAT; DISEASE; BACTERIA; MENINGITIS; CAUSE

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0031/70	A	I	L	B	20060101
A61K-0031/7024	A	I	L	B	20060101
A61K-0031/715	A	I	L	B	20060101
A61K-0038/16	A	I	L	B	20060101
A61K-0039/02	A	I	L	B	20060101
A61K-0039/095	A	I	L	B	20060101
A61K-0039/095	A	I	F	B	20060101
A61K-0039/385	A	I	L	B	20060101
A61K-0039/39	A	I	L	B	20060101
A61K-0047/48	A	I	L	B	20060101
A61P-0031/04	A	I	L	B	20060101
A61P-0037/04	A	I	L	B	20060101
C07H-0011/00	A	I	L	B	20060101
C07H-0011/04	A	I	F	B	20060101
C07H-0011/04	A	I	L	B	20060101
C07H-0013/02	A	I	L	B	20060101
C07H-0013/12	A	I	L	B	20060101
C07H-0015/04	A	I	L	B	20060101
C07H-0005/06	A	I	L	B	20060101
C07K-0014/00	A	I	L	B	20060101
C07K-0014/195	A	I	L	B	20060101
C07K-0014/34	A	I	L	B	20060101
C08B-0037/00	A	I	F	B	20060101
C08B-0037/00	A	I	L	B	20060101
A61K-0031/70	C	I		B	20060101
A61K-0031/7024	C	I		B	20060101
A61K-0031/715	C	I		B	20060101
A61K-0038/16	C	I		B	20060101
A61K-0039/02	C	I	L	B	20090101
A61K-0039/095	C	I	L	B	20100101
A61K-0039/095	C	I		B	20060101
A61K-0039/385	C	I		B	20060101
A61K-0039/39	C	I	L	B	20100101
A61K-0047/48	C	I	L	B	20090101
A61P-0031/00	C	I	L	B	20100101
A61P-0031/00	C	I		B	20060101
A61P-0037/00	C	I		B	20060101
C07H-0011/00	C	I	F	B	20100101
C07H-0011/00	C	I		B	20060101

C07H-0013/00 C I B 20060101
 C07H-0015/00 C I B 20060101
 C07H-0005/00 C I B 20060101
 C07K-0014/00 C I B 20060101
 C07K-0014/195 C I B 20060101
 C08B-0037/00 C I F B 20090101
 C08B-0037/00 C I L B 20100101
 C13K S 20060101

ECLA: A61K-039/095, A61K-047/48R2V, C07H-013/00, C08B-037/00, C08B-037/00P

ICO: K61K-039:555A, K61K-039:60P10

US Classification, Current Main: 424-193100; Secondary: 424-184100,
 424-250100, 514-001100, 514-023000, 514-054000, 530-404000, 530-405000,
 530-406000, 530-408000, 530-409000, 530-411000, 536-018700, 536-053000,
 536-054000, 536-117000, 536-118000, 536-119000, 536-120000

US Classification, Issued: 424193.1, 536118, 536119, 53653, 53654, 536120,
 536117, 53618.7, 530408, 530409, 530411, 530404, 530405, 530406, 51423,
 424250.1, 424184.1, 5141.1, 51454

JP Classification

FI Term	Facet	Rank	Type
C07H-011/04	CSP	A	main
A61K-039/095		B	secondary
A61K-039/39		B	secondary
A61P-031/04		B	secondary
C08B-037/00	P	B	secondary
C07H-011/04	CSP		
A61K-039/095			
A61K-039/39			
A61P-031/04			
C08B-037/00	P		

F-Term View Point Additional

Theme + Figure Code

4C057
 4C085
 4C090
 4C201
 4C085 AA03
 4C090 AA05
 4C090 AA09
 4C057 AA17
 4C057 AA20
 4C085 AA38
 4C085 BA16
 4C090 BA94
 4C090 BA97
 4C057 BB02
 4C090 BB64
 4C090 BB92
 4C090 BC25
 4C090 BD41
 4C090 CA35
 4C057 CC03
 4C090 DA23
 4C057 DD03
 4C085 DD11
 4C085 DD59
 4C085 DD86
 4C085 EE06
 4C085 FF01
 4C085 FF13
 4C057 GG03

4C085 GG04
4C085 GG05
4C085 GG08
4C085 GG10

File Segment: CPI

DWPI Class: B03; B04

Manual Codes (CPI/A-M): B04-C02; B05-B02A3; B14-A01; B14-N16; B14-S11;
N05-D

Original Publication Data by Authority

Australia

Publication No. AU 2008204259 A1 (Update 200954 E)

Publication Date: 20080717

Assignee: NOVARTIS AG (NOVS)

Inventor: BARDOTTI A

BERTI F

COSTANTINO P

Language: EN

Application: AU 2008204259 A 20080111 (Local application)

Priority: GB 2007562 A 20070111

Related Publication: WO 2008084411 A (Based on OPI patent)

Original IPC: A61K-39/02(B,I,H,EP,20060101,20081224,A,L)

A61K-47/48(B,I,H,EP,20060101,20081224,A,L)

C08B-37/00(B,I,H,EP,20060101,20081224,A,F)

Current IPC: A61K-39/02(B,I,H,EP,20060101,20081224,A,L)

A61K-39/02(B,I,H,EP,20060101,20081224,C,L)

A61K-47/48(B,I,H,EP,20060101,20081224,A,L)

A61K-47/48(B,I,H,EP,20060101,20081224,C,L)

C08B-37/00(B,I,H,EP,20060101,20081224,A,F)

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Current ECLA class: A61K-39/095 A61K-47/48R2V C07H-13/00 C08B-37/00

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Canada

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A61K-39/02(B,I,M,98,20060101,20081224,C)

A61K-47/48(B,I,H,EP,20060101,20081224,A,L)

A61K-47/48(B,I,M,98,20060101,20081224,C)

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Current IPC: A61K-39/02(B,I,H,EP,20060101,20081224,A,L)

A61K-39/02(B,I,H,EP,20060101,20081224,C,L)

A61K-47/48(B,I,H,EP,20060101,20081224,A,L)

A61K-47/48(B,I,H,EP,20060101,20081224,C,L)

C08B-37/00(B,I,H,EP,20060101,20081224,A,F)

C08B-37/00(B,I,H,EP,20060101,20081224,C,F)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07H-13/00 C08B-37/00
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Modified saccharides

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Current IPC: A61K-39/02(B,I,H,CN,20060101,20091118,A,L)

A61K-39/02(B,I,H,CN,20090101,20091118,C,L)

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C08B-37/00(B,I,H,CN,20060101,20091118,A,F)

C08B-37/00(B,I,H,CN,20090101,20091118,C,F)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07H-13/00 C08B-37/00

C08B-37/00P

Current ECLA ICO class: K61K-39:555A K61K-39:60P10

Original Abstract: Modified capsular saccharides comprising a blocking group at a hydroxyl group position on at least one of the monosaccharide units of the corresponding native capsular saccharide, wherein the blocking group is of the formula (Ia) or (Ib), -OX-Y (Ia) or -O-R1 (Ib), wherein X is C(O), S(O) or SO₂; Y is NR₁R₂ or R₃; R₁ is C1-6 alkyl substituted with 1, 2 or 3 groups independently selected from hydroxyl, sulphydryl and amine; R₂ is H or C1-6 alkyl; and R₃ is C1-6 alkyl; processes for modifying a capsular saccharide with the blocking groups; saccharide-protein conjugates comprising the modified capsular saccharide; processes for making the saccharide-protein conjugates, pharmaceutical compositions comprising the modified capsular saccharides and/or saccharide-protein conjugates; and methods and uses of the same.

Claim: [CLAIM 1] A modified capsular saccharide comprising a blocking group at a hydroxyl group position on at least one of the monosaccharide units of the corresponding native capsular saccharide, wherein the blocking group is of the formula (Ia) or (Ib), -O-X-Y (Ia) -O-R1 (Ib), wherein X is C(O), S(O) or SO₂; Y is NR₁R₂ or R₃; R₁ is C1-6 alkyl substituted with 1, 2 or 3 groups independently selected from hydroxyl, sulphydryl and amine; R₂ is H or C6 alkyl; R₃ is C1-6 alkyl.

[CLAIM 2] The modified capsular saccharide according to claim 1, wherein the blocking group is of formula (Ia).

[CLAIM 3] The modified capsular saccharide according to claim 2, wherein X is C(O).

[CLAIM 4] The modified capsular saccharide according to claim 2 or claim 3, wherein Y is NR₁R₂.

[CLAIM 5] The modified capsular saccharide according to claim 4, wherein R₂ is H.

[CLAIM 6] The modified capsular saccharide according to claim 4 or claim 5, wherein R₁ is substituted with 1, 2 or 3 hydroxyl groups.

[CLAIM 7] The modified capsular saccharide according to any one of claims 4 to 6, wherein R1 is substituted with a single group, this substitution being at the distal end of the C1-6 alkyl chain.

[CLAIM 8] The modified capsular saccharide according to any one of claims 4 to 6, wherein R1 is substituted with two vicinal groups.

[CLAIM 9] The modified capsular saccharide according to any one of claims 4 to 8, wherein the saccharide comprises a) at least one blocking group, wherein R1 is substituted with a single group, this substitution being at the distal end of the C1-6 alkyl chain and b) at least one blocking group, wherein R1 is substituted with two vicinal groups.

[CLAIM 10] The modified capsular saccharide according to claim 9, wherein the ratio of blocking groups, wherein R1 is substituted with a single group to blocking groups, wherein R1 is substituted with two vicinal groups is 90: 10.

[CLAIM 11] The modified capsular saccharide according to claim 2 or claim 3, wherein Y is R3.

[CLAIM 12] The modified capsular saccharide according to claim 11, wherein R3 is CH3.

[CLAIM 13] The modified capsular saccharide according to any one of the preceding claims, wherein at least 10% of the monosaccharide units of the saccharide have blocking groups.

[CLAIM 14] The modified capsular saccharide according to any one of the preceding claims, wherein all the monosaccharide units of the saccharide have blocking groups.

[CLAIM 15] The modified capsular saccharide according to any one of the preceding claims, wherein the corresponding native capsular saccharide comprises monosaccharide units linked by phosphodiester bonds.

[CLAIM 16] The modified capsular saccharide according to claim 15, wherein the corresponding native capsular saccharide is a *Neisseria meningitidis* serogroup A saccharide.

[CLAIM 17] The modified capsular saccharide according to claim 16, wherein the blocking group is at any of the 4- and/or 3-positions of the corresponding *Neisseria meningitidis* serogroup A saccharide.

[CLAIM 18] The modified capsular saccharide according to claim 17, wherein the blocking group is at any of the 4-positions of the corresponding *Neisseria meningitidis* serogroup A saccharide.

[CLAIM 19] The modified capsular saccharide according to any one of the preceding claims, wherein the modified capsular saccharide is an oligosaccharide.

[CLAIM 20] The modified capsular saccharide according to any one of the preceding claims, wherein the modified saccharide comprises a terminal anomeric hydroxyl group or an amino group derived from a terminal anomeric hydroxyl group.

[CLAIM 21] The modified capsular saccharide according to any one of claims 1 to 19, wherein there is at least one monosaccharide unit of the modified capsular saccharide where two vicinal hydroxyl groups of the corresponding native capsular saccharide do not comprise blocking groups.

[CLAIM 22] The modified capsular saccharide according to any one of claims 1 to 19, wherein at least one of the monosaccharide units of the saccharide comprise blocking groups, wherein R1 is substituted with two vicinal hydroxyl groups.

[CLAIM 23] A saccharide of the formula, FORMULA, wherein T is of the formula (A) or (B), FORMULA (A), FORMULA (B), n is an integer from 1 to 100; each Z group is independently selected from OH, OAc or a blocking group as defined in claims 1 to 8 or 11 to 12; and each Q group is independently selected from OH, OAc or a blocking group as defined in claims 1 to 8 or 11 to 12; V is selected from -NH2, -NHE, -NE1E2, W2, or -O-D, where: E, E1 and E2 are nitrogen protecting groups, which may be the same or different, and D is an oxygen protecting group; W is selected from -OH or a blocking group as defined in any one of claims 1 to 8 or 11 to 12; W1 is selected from -OH or a blocking group as defined

in any one of claims 1 to 8 or 11 to 12; W2 is selected from -OH or a blocking group as defined in any one of claims 1 to 8 or 11 to 12; and wherein at least one of the Z groups and/or at least one of the Q groups are blocking groups as defined in claims 1 to 8 or 11 to 12.

[CLAIM 24] The saccharide according to claim 23, wherein at least 10% of the Z groups are blocking groups.

[CLAIM 25] The saccharide according to claim 23 or claim 24, wherein n is an integer from 15 to 25.

[CLAIM 26] The saccharide according to any one of claims 23 to 25, wherein at least 1% of the Q groups are blocking groups.

[CLAIM 27] A process for modifying a capsular saccharide comprising the steps of: (a) providing a capsular saccharide having at least one hydroxyl group on a monosaccharide unit; and (b) converting said at least one hydroxyl group into a blocking group as defined in claims 1 to 8 or 11 to 12.

[CLAIM 28] The process according to claim 27, wherein the blocking group is -OC(O)NR1R2 and step (b) comprises the steps of: (b1) reacting the capsular saccharide with a bifunctional reagent in an organic solvent; and (b2) reacting the product of step (b1) with an amino compound of formula (I), HNR1R2 (I), wherein R1 and R2 are as defined in any of claims 1 to 8.

[CLAIM 29] The process according to claim 27, wherein the blocking group is -OC(O)R3 and step (b) comprises the step of (b1) reacting the capsular saccharide with [(R3C(O))]20 in the presence of an imidazole catalyst.

[CLAIM 30] The process according to claim 28 or claim 29, wherein the capsular saccharide in step (a) is a capsular oligosaccharide.

[CLAIM 31] The process according to claim 30, wherein the capsular oligosaccharide is obtainable by depolymerising and sizing the corresponding native capsular polysaccharide.

[CLAIM 32] The process of claim 30, wherein the capsular saccharide in step (a) is a native capsular polysaccharide and the process further comprises a step (c) in which the product of step (b) is sized, thereby providing a modified capsular oligosaccharide.

[CLAIM 33] A process for modifying a Neisseria meningitidis serogroup A polysaccharide comprising the steps of: (a) providing a native Neisseria meningitidis serogroup A polysaccharide; (b) depolymerising and sizing said polysaccharide to provide an oligosaccharide; and (c) converting at least one hydroxyl group of the oligosaccharide into a blocking group, in accordance with any one of claims 27 to 29.

[CLAIM 34] A process for modifying a Neisseria meningitidis serogroup A polysaccharide comprising the steps of: (a) providing a native Neisseria meningitidis serogroup A polysaccharide; (b) converting at least one hydroxyl group of the polysaccharide into a blocking group, in accordance with any one of claims 27 to 29; and (c) depolymerising and sizing the resulting polysaccharide.

[CLAIM 35] A process for preparing the modified capsular saccharide of claims 1 to 26 which is a total synthesis process comprising forming glycosidic linkages between two or more monosaccharide units.

[CLAIM 36] A modified capsular saccharide obtainable or obtained by the process according to any one of claims 27 to 35.

[CLAIM 37] A saccharide-protein conjugate of a modified saccharide according to any one of claims 1 to 26 or 36.

[CLAIM 38] The conjugate according to claim 37, wherein the protein is a bacterial toxin or toxoid.

[CLAIM 39] The conjugate according to claim 38, wherein the bacterial toxin or toxoid is diphtheria toxin or toxoid

[CLAIM 40] The conjugate according to claim 39, wherein the bacterial toxin or toxoid is CRM197.

[CLAIM 41] A process for making a saccharide-protein conjugate comprising the steps of: (c) providing a modified capsular saccharide according to claim 20; and (d) conjugating the modified capsular saccharide to a

protein via the terminal anomeric hydroxyl group or the amino group derived from a terminal anomeric hydroxyl group.

[CLAIM 42] A process for making a saccharide-protein conjugate comprising the steps of: (a) providing a modified capsular saccharide according to claim 21; (b) converting at least one of the pairs of vicinal hydroxyl groups into aldehyde groups by oxidative cleavage; and (c) linking the modified capsular saccharide to a protein by reductive amination.

[CLAIM 43] A process for making a saccharide-protein conjugate comprising the steps of: (a) providing a modified capsular saccharide according to claim 22; (b) converting at least one of the pairs of vicinal hydroxyl groups into an aldehyde groups by oxidative cleavage; and (c) linking the modified capsular saccharide to a protein by reductive amination.

[CLAIM 44] The process according to claim 43, wherein all of the vicinal hydroxyl groups present in the blocking groups are converted into aldehyde groups in step (b).

[CLAIM 45] The process according to claim 43, wherein the conditions for oxidative cleavage are selected such that only a proportion of the vicinal hydroxyl groups present in the blocking groups are converted into aldehyde groups in step (b).

[CLAIM 46] The process according to any one of claims 41 to 45, wherein the protein is as defined in any one of claims 38 to 40.

[CLAIM 47] A saccharide-protein conjugate of a modified saccharide obtainable or obtained by the process according to any one of claims 41 to 46.

[CLAIM 48] A molecule comprising a saccharide moiety of formula, FORMULA, wherein T is of the formula (A) or (B), FORMULAE, n is an integer from 1 to 100; each Z group is independently selected from OH or a blocking group as defined in claims 1 to 8 or 11 to 12; and each Q group is independently selected from OH or a blocking group as defined in claims 1 to 8 or 11 to 12; W is selected from OH or a blocking group as defined in claims 1 to 8 or 11 to 12; L is O, NH, NE, S or Se, wherein the free covalent bond of L is joined to a protein carrier; and wherein the protein carrier is as defined in any one of claims 38 to 40, and wherein at least one of the Z groups and/or at least one of the Q groups are blocking groups as defined in claims 1 to 8 or 11 to 12.

[CLAIM 49] A molecule comprising a saccharide of the formula, FORMULA, wherein T is of the formula (A) or (B), FORMULAE, n, Z, Q, W, W and V are as defined in claim 23, and at least one of the Z groups and/or at least one of the Q groups are of the formula -O-X-Y' (IIa), -O-R4 (IIb), wherein X is C(O), S(O) or SO₂; Y' is NR₂R₄; R₂ is H or C₁-6alkyl; and R₄ is -C₁-4 alkylene-CH(O) or -C₁-5 alkylene-NH-, wherein the -NH- group is part of a protein carrier; and wherein the protein carrier is a protein defined in any one of claims 38 to 40.

[CLAIM 50] A pharmaceutical composition comprising (a) a modified saccharide according to any one of claims 1 to 26 or 36 and/or a saccharide-protein conjugate according to any one of claims 37 to 40 or 47 and/or a molecule according to claim 48 or 49, and (b) a pharmaceutically acceptable carrier.

[CLAIM 51] The composition according to claim 50, further comprising a saccharide antigen from one or more of serogroups C, W135 and Y of N. meningitidis, the saccharide optionally being an oligosaccharide and optionally being conjugated to a carrier protein.

[CLAIM 52] The composition according to claim 50 or claim 51, further comprising a vaccine adjuvant.

[CLAIM 53] The composition according to claim 52, wherein the adjuvant is an aluminium phosphate.

[CLAIM 54] The composition according to any one of claims 50 to 53, which is a vaccine against a disease caused by N. meningitidis.

[CLAIM 55] A method for raising an antibody response in a mammal, comprising administering the pharmaceutical composition according to any one of claims 50 to 54 to the mammal.

[CLAIM 56] The modified saccharide of any one according to claims 1 to 26

or 36; the conjugate according to any one of claims 37 to 40 or 47; or the molecule according to claim 48 or 49 for use as a medicament.
[CLAIM 57] The use of the modified polysaccharide according to any one of claims 1 to 26 or 36, or the conjugate according to any one of claims 37 to 40 or 47, or the molecule according to claim 48 or 49, in the manufacture of a medicament for preventing or treating a disease caused by one or more capsulate bacteria.
[CLAIM 58] The use according to claim 57, wherein the disease is bacterial meningitis.

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**MODIFIZIERTE SACCHARIDE

MODIFIED SACCHARIDES

SACCHARIDES MODIFIES**

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Current IPC: A61K-39/02(B,I,H,EP,20060101,20090812,A,L)

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A61K-47/48(B,I,H,EP,20090101,20090812,C,L)

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Current ECLA class: A61K-39/095 A61K-47/48R2V C07H-13/00 C08B-37/00 C08B-37/00P

Current ECLA ICO class: K61K-39:555A K61K-39:60P10

Original Abstract: Modified capsular saccharides comprising a blocking group at a hydroxyl group position on at least one of the monosaccharide units of the corresponding native capsular saccharide, wherein the blocking group is of the formula (Ia) or (Ib): -OX-Y (Ia) or -O-R1 (Ib) wherein X is C(O), S(O) or SO₂; Y is NR₁R₂ or R₃; R₁ is C1-6 alkyl substituted with 1, 2 or 3 groups independently selected from hydroxyl, sulphydryl and amine; R₂ is H or C1-6 alkyl; and R₃ is C1-6 alkyl; processes for modifying a capsular saccharide with the blocking groups; saccharide-protein conjugates comprising the modified capsular saccharide; processes for making the saccharide-protein conjugates, pharmaceutical compositions comprising the modified capsular saccharides and/or saccharide-protein conjugates; and methods and uses of the same.

Japan

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A61P-31/04(B,I,H,JP,20060101,20100416,A,L)
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C07H-11/04(B,I,H,JP,20060101,20100416,A,F)
C08B-37/00(B,I,H,JP,20060101,20100416,A,L)
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Current IPC: A61K-39/095(B,I,H,JP,20060101,20100416,A,L)
A61K-39/095(B,I,H,JP,20100101,20100416,C,L)
A61K-39/39(B,I,H,JP,20060101,20100416,A,L)
A61K-39/39(B,I,H,JP,20100101,20100416,C,L)
A61P-31/00(B,I,H,JP,20100101,20100416,C,L)
A61P-31/04(B,I,H,JP,20060101,20100416,A,L)
C07H-11/00(B,I,H,JP,20100101,20100416,C,F)
C07H-11/04(B,I,H,JP,20060101,20100416,A,F)
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C08B-37/00(B,I,H,JP,20100101,20100416,C,L)
Current ECLA class: A61K-39/095 A61K-47/48R2V C07H-13/00 C08B-37/00
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4C057AA17 4C057AA20 4C085AA38 4C085BA16 4C090BA94 4C090BA97 4C057BB02
4C090BB64 4C090BB92 4C090BC25 4C090BD41 4C090CA35 4C057CC03 4C090DA23
4C057DD03 4C085DD11 4C085DD59 4C085DD86 4C085EE06 4C085FF01 4C085FF13
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Mexico

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Original IPC: A61K-39/02(I,MX,20060101,A,L) A61K-39/02(I,M,98,20060101,C)
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A61K-47/48(B,I,H,MX,20090101,20060101,C,L)
C08B-37/00(B,I,H,MX,20090101,20060101,C,F)
Current ECLA class: A61K-39/095 A61K-47/48R2V C07H-13/00 C08B-37/00
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A61K-31/7024(B,I,M,98,20060101,20101223,C)

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A61K-31/715(B,I,M,98,20060101,20101223,C)

A61K-38/16(B,I,H,US,20060101,20101223,A,L)

A61K-38/16(B,I,M,98,20060101,20101223,C)

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A61K-39/385(B,I,H,US,20060101,20101223,A,L)

A61K-39/385(B,I,M,98,20060101,20101223,C)

A61P-31/00(B,I,M,98,20060101,20101223,C)

A61P-31/04(B,I,H,US,20060101,20101223,A,L)

A61P-37/00(B,I,M,98,20060101,20101223,C)

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C07H-11/00(B,I,H,US,20060101,20101223,A,L)

C07H-11/00(B,I,M,98,20060101,20101223,C)

C07H-11/04(B,I,H,US,20060101,20101223,A,L)

C07H-13/00(B,I,M,98,20060101,20101223,C)

C07H-13/02(B,I,H,US,20060101,20101223,A,L)

C07H-13/12(B,I,H,US,20060101,20101223,A,L)

C07H-15/00(B,I,M,98,20060101,20101223,C)

C07H-15/04(B,I,H,US,20060101,20101223,A,L)

C07H-5/00(B,I,M,98,20060101,20101223,C)

C07H-5/06(B,I,H,US,20060101,20101223,A,L)

C07K-14/00(B,I,H,US,20060101,20101223,A,L)

C07K-14/00(B,I,M,98,20060101,20101223,C)

C07K-14/195(B,I,H,US,20060101,20101223,A,L)

C07K-14/195(B,I,M,98,20060101,20101223,C)

C07K-14/34(B,I,H,US,20060101,20101223,A,L)

Current IPC: A61K-31/70(B,I,H,US,20060101,20101223,A,L)

A61K-31/70(B,I,M,98,20060101,20101223,C)

A61K-31/7024(B,I,H,US,20060101,20101223,A,L)

A61K-31/7024(B,I,M,98,20060101,20101223,C)

A61K-31/715(B,I,H,US,20060101,20101223,A,L)

A61K-31/715(B,I,M,98,20060101,20101223,C) A61K-38/

16(B,I,H,US,20060101,20101223,A,L)

A61K-38/16(B,I,M,98,20060101,20101223,C)

A61K-39/095(B,I,H,US,20060101,20101223,A,F)

A61K-39/095(B,I,M,98,20060101,20101223,C)

A61K-39/385(B,I,H,US,20060101,20101223,A,L)

A61K-39/385(B,I,M,98,20060101,20101223,C)

A61P-31/00(B,I,M,98,20060101,20101223,C)

A61P-31/04(B,I,H,US,20060101,20101223,A,L)
A61P-37/00(B,I,M,98,20060101,20101223,C)
A61P-37/04(B,I,H,US,20060101,20101223,A,L)
C07H-11/00(B,I,H,US,20060101,20101223,A,L)
C07H-11/00(B,I,M,98,20060101,20101223,C)
C07H-11/04(B,I,H,US,20060101,20101223,A,L)
C07H-13/00(B,I,M,98,20060101,20101223,C)
C07H-13/02(B,I,H,US,20060101,20101223,A,L)
C07H-13/12(B,I,H,US,20060101,20101223,A,L)
C07H-15/00(B,I,M,98,20060101,20101223,C)
C07H-15/04(B,I,H,US,20060101,20101223,A,L)
C07H-5/00(B,I,M,98,20060101,20101223,C)
C07H-5/06(B,I,H,US,20060101,20101223,A,L)
C07K-14/00(B,I,H,US,20060101,20101223,A,L)
C07K-14/00(B,I,M,98,20060101,20101223,C)
C07K-14/195(B,I,H,US,20060101,20101223,A,L)
C07K-14/195(B,I,M,98,20060101,20101223,C)
C07K-14/34(B,I,H,US,20060101,20101223,A,L)

Current US Class (main): 424-193100

Current US Class (secondary): 424-184100 424-250100 514-001100 514-023000

514-054000 530-404000 530-405000 530-406000 530-408000 530-409000

530-411000 536-018700 536-053000 536-054000 536-117000 536-118000

536-119000 536-120000

Original US Class (main): 424193.1

Original US Class (secondary): 536118 536119 53653 53654 536120 536117

53618.7 530408 530409 530411 530404 530405 530406 51423 424250.1

424184.1 5141.1 51454

Original Abstract: Modified capsular saccharides comprising a blocking group at a hydroxyl group position on at least one of the monosaccharide units of the corresponding native capsular saccharide, wherein the blocking group is of the formula (Ia) or (Ib): --OX--Y (Ia) or --O--R1 (Ib) wherein X is C(O), S(O) or SO₂; Y is NR₁R₂ or R₃; R₁ is C1-6 alkyl substituted with 1, 2 or 3 groups independently selected from hydroxyl, sulphydryl and amine; R₂ is H or C1-6 alkyl; and R₃ is C1-6 alkyl; processes for modifying a capsular saccharide with the blocking groups; saccharide-protein conjugates comprising the modified capsular saccharide; processes for making the saccharide-protein conjugates, pharmaceutical compositions comprising the modified capsular saccharides and/or saccharide-protein conjugates; and methods and uses of the same.

Claim:

1.

****1****. A modified capsular saccharide comprising a blocking group at a hydroxyl group position on at least one of the monosaccharide units of the corresponding native capsular saccharide, wherein the blocking group is of the formula (Ia) or (Ib):

* --O--X--Y (Ia)

* --O-- R1 (Ib)

* wherein

* X is C(O), S(O) or SO₂;

* Y is NR₁R₂ or R₃;

* R₁ is C1-6 alkyl substituted with 1, 2 or 3 groups independently selected from hydroxyl, sulphydryl and amine;

* R₂ is H or C1-6 alkyl;

* R₃ is C1-6 alkyl.

WIPO

Publication No. WO 2008084411 A2 (Update 200854 B)

Publication Date: 20080717

**MODIFIED SACCHARIDES

SACCHARIDES MODIFIES**

Assignee: ~(except US)~ NOVARTIS AG, Lichtstrasse 35, CH-4056 Basel, CH

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~(only US)~ BERTI, Francesco, Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

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Inventor: BARDOTTI, Angela, Novartis Vaccines and Diagnostics Srl, Via Fiorentina 1, I-53100 Siena, IT Residence: IT Nationality: IT

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COSTANTINO, Paolo, Novartis Vaccines and Diagnostics Srl, Via Fiorentina 1, I-53100 Siena, IT

Agent: MARSHALL, Cameron, John et al., Carpameals Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, GB

Language: EN (84 pages, 9 drawings)

Application: WO 2008IB1116 A 20080111 (Local application)

Priority: GB 2007562 A 20070111

Designated States: (National Original) AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KZ LA LC LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL NO OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Original IPC: C13K(99,20060101,S)

Current IPC: C13K(99,20060101,S)

Current ECLA class: A61K-39/095 C07H-13/00 C08B-37/00 C08B-37/00P

Current ECLA ICO class: K61K-39:555A K61K-39:60P10

Original Abstract: Modified capsular saccharides comprising a blocking group at a hydroxyl group position on at least one of the monosaccharide units of the corresponding native capsular saccharide, wherein the blocking group is of the formula (Ia) or (Ib): -OX-Y (Ia) or -O-R1 (Ib) wherein X is C(O), S(O) or SO₂; Y is NR₁R₂ or R₃; R₁ is C1-6 alkyl substituted with 1, 2 or 3 groups independently selected from hydroxyl, sulphydryl and amine; R₂ is H or C1-6 alkyl; and R₃ is C1-6 alkyl; processes for modifying a capsular saccharide with the blocking groups; saccharide-protein conjugates comprising the modified capsular saccharide; processes for making the saccharide-protein conjugates, pharmaceutical compositions comprising the modified capsular saccharides and/or saccharide-protein conjugates; and methods and uses of the same.

L'invention concerne des saccharides capsulaires modifies comprenant un groupe bloquant au niveau d'une position de groupe hydroxy sur au moins l'un des motifs monosaccharide du saccharide capsulaire natif correspondant, dans lesquels le groupe bloquant est de la formule (Ia) ou (Ib): -OX-Y (Ia) ou -O-R1 (Ib) dans lesquelles X represente C(O), S(O) ou SO₂; Y represente NR₁R₂ ou R₃; R₁ represente un groupe alkyle en C1 a C6 substitue par 1, 2 ou 3 groupes choisis independamment parmi le groupe hydroxy, sulfydryle et amine; R₂ represente un atome H ou un groupe alkyle en C1 a C6; et R₃ represente un groupe alkyle en C1 a C6; des procedes permettant de modifier un saccharide capsulaire avec les

groupes bloquants; des conjugués saccharide/proteine comprenant le saccharide capsulaire modifié; des procédés permettant de fabriquer les conjugués saccharide/proteine; des compositions pharmaceutiques comprenant des saccharides capsulaires modifiés et/ou des conjugués saccharide/proteine; et des procédés d'utilisation de ces composés.

Publication No. WO 2008084411 A3 (Update 200903 E)

Publication Date: 20081224

Language: EN

Designated States: (National Original) AE AG AL AM AO AT AU AZ BA BB BG BH BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL NO OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Original IPC: A61K-39/02 (B, I, H, EP, 20060101, A, L)

A61K-39/02 (B, I, M, 98, 20060101, C) A61K-47/48 (B, I, H, EP, 20060101, A, L)

A61K-47/48 (B, I, M, 98, 20060101, C) C08B-37/00 (B, I, H, EP, 20060101, A, F)

C08B-37/00 (B, I, M, 98, 20060101, C)

Current IPC: A61K-39/02 (B, I, H, EP, 20060101, 20081224, A, L)

A61K-39/02 (B, I, H, EP, 20060101, 20081224, C, L)

A61K-47/48 (B, I, H, EP, 20060101, 20081224, A, L)

A61K-47/48 (B, I, H, EP, 20060101, 20081224, C, L)

C08B-37/00 (B, I, H, EP, 20060101, 20081224, A, F)

C08B-37/00 (B, I, H, EP, 20060101, 20081224, C, F)

Current ECLA class: A61K-39/095 C07H-13/00 C08B-37/00 C08B-37/00P

Current ECLA ICO class: K61K-39:555A K61K-39:60P10

10/7/10 (Item 10 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0017833268

WPI ACC NO: 2008-G53727/200841

XRAM Acc No: C2008-207379

XRPX Acc No: N2008-513921

Analyzing degree of unconjugation of a sample by contacting the sample with a basic reagent to precipitate conjugated saccharide component from sample and obtain supernatant comprising the unconjugated component

Patent Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS); NOVARTIS

VACCINES&DIAGNOSTICS SRL (NOVS)

Inventor: BERTI F; COSTANTINO P; GALLETTI B; PARENTE P

Patent Family (4 patents, 119 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2007122512	A2	20071101	WO 2007IB1855	A	20070321	200841 B
WO 2007122512	A3	20080124				200841 E
EP 2005165	A2	20081224	EP 2007734937	A	20070321	200903 E
			WO 2007IB1855	A	20070321	
US 20090176311	A1	20090709	WO 2007IB1855	A	20070321	200946 E
			US 2009293130	A	20090218	

Priority Applications (no., kind, date): GB 20065757 A 20060322

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2007122512	A2	EN	33	3	

National Designated States, Original: AE AG AL AM AT AU AZ BA BB BG BH BR

BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM
 GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY
 MA MD MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD
 SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
 Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES
 FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL OA PL PT
 RO SD SE SI SK SL SZ TR TZ UG ZM ZW
 WO 2007122512 A3 EN
 National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BH BR
 BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM
 GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY
 MA MD MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD
 SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
 Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES
 FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL OA PL PT
 RO SD SE SI SK SL SZ TR TZ UG ZM ZW
 EP 2005165 A2 EN PCT Application WO 2007IB1855
 Based on OPI patent WO 2007122512
 Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR
 GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR
 US 20090176311 A1 EN PCT Application WO 2007IB1855

Alerting Abstract WO A2

NOVELTY - Analyzing a sample's degree of unconjugation comprises (a) contacting the sample with a basic reagent under basic conditions to selectively precipitate the conjugated saccharide component from the sample and to obtain a supernatant comprising the separated unconjugated component, and (b) analyzing the supernatant's content to give the unconjugated content of the sample.

DESCRIPTION - INDEPENDENT CLAIMS are:

- 1.a method of preparing a sample for analysis of its degree of unconjugation;
- 2.a method of separating a conjugated saccharide component in a sample from an unconjugated component in the sample;
- 3.a supernatant obtained by the method above;
- 4.a precipitate obtained by the method above;
- 5.a method of releasing a vaccine for use by physicians;
- 6.a method for preparing a vaccine composition; and
- 7.a method for packaging a vaccine.

USE - The basic reagent under basic conditions used in the methods above is useful for selectively precipitating a conjugated saccharide component in a sample from an unconjugated component in the sample, thus separating the conjugated saccharide component from the unconjugated component (claimed). The methods are useful for analyzing a sample's degree of unconjugation, preparing a sample for analysis of its degree of unconjugation, and separating a conjugated saccharide component in a sample from an unconjugated component in the sample. The methods can be used for the analysis and quality control of conjugate vaccines and for monitoring the stability of a vaccine in storage.

ADVANTAGE - The invention overcomes the deficiencies in the prior art and provides a rapid and quantitative technique for separation of unconjugated and conjugated components. It is applicable to a range of conjugate vaccines, including vaccines comprising bacterial ****capsular**** saccharides containing a sialic acid residue and particularly vaccines

comprising ~Streptococcus agalactiae ~ *****capsular***** saccharide.

Technology Focus

BIOTECHNOLOGY - Preferred Method: The improved method of analyzing the degree of unconjugation of a sample comprises contacting the sample with a basic reagent under basic conditions to selectively precipitate the conjugated saccharide component from the sample. Preparing a sample for analysis of its degree of unconjugation comprises contacting the sample with a basic reagent under basic conditions to selectively precipitate the conjugated saccharide component from the sample and to obtain a supernatant comprising separated unconjugated component. The unconjugated component is an unconjugated saccharide component or an unconjugated carrier component. It also comprises measuring the sample's total saccharide content or measuring the sample's total carrier content. In the method, the basic reagent comprises a lyotropic salt, where the lyotropic salt is a sulfate, hydrogen phosphate, acetate, citrate, tartrate of ammonium, potassium, sodium, or lithium. Preferably, the lyotropic salt is a sulfate or hydrogen phosphate of ammonium or potassium. Specifically, the lyotropic salt is K₂HPO₄. In the method, the basic conditions are from pH 8-12. Preferably, the basic reagent comprises K₂HPO₄ and the basic conditions are from pH 9.5-9.9. Preferably, the conjugated saccharide is a saccharide antigen conjugated to a carrier protein. The sample is a vaccine, where the vaccine is a glycoconjugate vaccine. The glycoconjugate vaccine comprises a conjugate comprising a saccharide containing a sialic acid residue. It also comprises a conjugate comprising a bacterial *****capsular***** saccharide from ~Streptococcus agalactiae ~ . Preferably, the bacterial *****capsular***** saccharide is from ~S. agalactiae ~ serogroup Ia, Ib, II, III, or V. Separating a conjugated saccharide component in a sample from an unconjugated component in the sample comprises contacting the sample with a basic reagent under basic conditions to selectively precipitate the conjugated saccharide component from the sample. The improvement comprises contacting the sample with a basic reagent under basic conditions to selectively precipitate the conjugated saccharide component from the sample. Releasing a vaccine for use by physicians comprises:

- 1.manufacturing a vaccine comprising a conjugated saccharide;
- 2.analyzing the vaccine's degree of unconjugation by the method above;
and
- 3.if the results from (b) indicate a degree of unconjugation acceptable for clinical use, releasing the vaccine for use by physicians.

Preparing a vaccine composition comprises analyzing the vaccine's degree of unconjugation by the method above including pH measurement, followed by adjusting the pH of the composition to a desired value, e.g. 6-8, preferably 7. Packaging a vaccine comprises:

- 1.manufacturing a bulk vaccine containing a conjugated saccharide;
- 2.analyzing the degree of unconjugation of the bulk vaccine by the method above;
- 3.optionally, analyzing the bulk vaccine for pH and/or other properties;
and
- 4.if the results from (b) and (c) indicate that the bulk vaccine is acceptable for clinical use, preparing and packaging the vaccine for human use from the bulk.

Title Terms/Index Terms/Additional Words: DEGREE; SAMPLE; CONTACT; BASIC;

REAGENT; PRECIPITATION; CONJUGATE; SACCHARIDE; COMPONENT; OBTAIN;
SUPERNATANT; COMPRISE; UNCONJUGATED

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/00	A	I	L	B	20060101
C07H-0001/00	A	I	L	B	20060101
G01N-0033/15	A	N	L		20060101
G01N-0033/50	A	I	F		20060101
G01N-0033/50	A	I	F	B	20060101
A61K-0039/00	C	I	L	B	20060101
A61K-0039/00	C	I		B	20060101
C07H-0001/00	C	I		B	20060101
G01N-0033/15	C	N			20060101
G01N-0033/50	C	I			20060101
G01N-0033/50	C	I	F	B	20060101
G01N-0033/50	C	I		B	20060101

ICO: K61K-039:60P10

US Classification, Current Main: 436-094000; Secondary: 536-127000

US Classification, Issued: 43694, 536127

File Segment: CPI; EPI

DWPI Class: B04; D16; S03

Manual Codes (EPI/S-X): S03-E13D

Manual Codes (CPI/A-M): B04-B04C1; B04-C02F; B04-N06; B07-A02B; B11-C06;
B11-C08D; B11-C08E; B12-K04A; B12-K04E3; B14-S11; D05-H07; D05-H09;
D05-H13

Original Publication Data by Authority

EPO

Publication No. EP 2005165 A2 (Update 200903 E)

Publication Date: 20081224

**TRENNUNG KONJUGierter UND NICHTKONJUGierter KOMPONENTEN

SEPARATION OF CONJUGATED AND UNCONJUGATED COMPONENTS

SEPARATION DE COMPOSES CONJUGUES ET NON CONJUGUES**

Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100
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Language: EN

Application: EP 2007734937 A 20070321 (Local application)

WO 2007IB1855 A 20070321 (PCT Application)

Priority: GB 20065757 A 20060322

Related Publication: WO 2007122512 A (Based on OPI patent)

Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR

Original IPC: A61K-39/00(B,I,H,EP,20060101,20081029,A,L)

A61K-39/00(B,I,M,98,20060101,20081029,C)

G01N-33/50(B,I,H,EP,20060101,20081029,A,F)

G01N-33/50(B,I,M,98,20060101,20081029,C)

Current IPC: A61K-39/00(B,I,H,EP,20060101,20081029,A,L)

A61K-39/00(B,I,M,98,20060101,20081029,C)

G01N-33/50(B,I,H,EP,20060101,20081029,A,F)

G01N-33/50(B,I,M,98,20060101,20081029,C)

Current ECLA ICO class: K61K-39:60P10

Original Abstract: The invention is based on the use of a basic reagent under basic conditions to separate conjugated saccharide from unconjugated components in a sample, ~e.g.~ a vaccine, by precipitation of the conjugated saccharide. The invention allows rapid and quantitative separation of conjugated and conjugated components, which may be exploited in analytical methods for quantifying unconjugated saccharide or carrier. Therefore, the separation of conjugated and unconjugated components using the invention may be advantageously combined with a quantitative saccharide or carrier analysis to provide improved quality control for conjugate vaccines.

United States

Publication No. US 20090176311 A1 (Update 200946 E)

Publication Date: 20090709

****SEPARATION OF CONJUGATED AND UNCONJUGATED COMPONENTS****

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Galletti, Bruno, Siena, IT Residence: IT

Parente, Pierino, Siena, IT Residence: IT

Costantino, Paolo, Siena, IT Residence: IT

Inventor: Berti, Francesco, Siena, IT Residence: IT

Costantino, Paolo, Siena, IT Residence: IT

Galletti, Bruno, Siena, IT Residence: IT

Parente, Pierino, Siena, IT Residence: IT

Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY R338,

P.O. BOX 8097, Emeryville, CA, US

Language: EN

Application: US 2009293130 A 20090218 (Local application)

WO 2007IB1855 A 20070321 (PCT Application)

Priority: GB 20065757 A 20060322

Original IPC: C07H-1/00(B,I,H,US,20060101,20090709,A,L)

C07H-1/00(B,I,M,98,20060101,20090709,C)

G01N-33/50(B,I,H,US,20060101,20090709,A,F)

G01N-33/50(B,I,M,98,20060101,20090709,C)

Current IPC: C07H-1/00(B,I,H,US,20060101,20090709,A,L)

C07H-1/00(B,I,M,98,20060101,20090709,C)

G01N-33/50(B,I,H,US,20060101,20090709,A,F)

G01N-33/50(B,I,M,98,20060101,20090709,C)

Current ECLA ICO class: K61K-39:60P10

Current US Class (main): 436-094000

Current US Class (secondary): 536-127000

Original US Class (main): 43694

Original US Class (secondary): 536127

Original Abstract: The invention is based on the use of a basic reagent under basic conditions to separate conjugated saccharide from unconjugated components in a sample, e.g. a vaccine, by precipitation of the conjugated saccharide. The invention allows rapid and quantitative separation of conjugated and conjugated components, which may be exploited in analytical methods for quantifying unconjugated saccharide or carrier. Therefore, the separation of conjugated and unconjugated components using the invention may be advantageously combined with a quantitative saccharide or carrier analysis to provide improved quality control for conjugate vaccines.

Claim:

1.

****1****. A method of analysing a sample's degree of unconjugation, comprising the steps of (i) contacting the sample with a basic

reagent under basic conditions to selectively precipitate the conjugated saccharide component from the sample and thereby to obtain a supernatant comprising the separated unconjugated component and (ii) analysing the supernatant's content to give the unconjugated content of the sample.

WIPO

Publication No. WO 2007122512 A2 (Update 200841 B)

Publication Date: 20071101

**SEPARATION OF CONJUGATED AND UNCONJUGATED COMPONENTS

SEPARATION DE COMPOSES CONJUGUES ET NON CONJUGUES**

Assignee: ~(except US)~ NOVARTIS VACCINES AND DIAGNOSTICS SRL, Via

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Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John, Carpmals Ransford, 43-45 Bloomsbury

Square, London WC1A 2RA, GB

Language: EN (33 pages, 3 drawings)

Application: WO 2007IB1855 A 20070321 (Local application)

Priority: GB 20065757 A 20060322

Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BH BR

BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM

GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LY

MA MD MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD

SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR

HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL OA PL PT RO SD SE SI SK SL

SZ TR TZ UG ZM ZW

Original IPC: G01N-33/15(N,99,20060101,A,L) G01N-33/15(N,M,98,20060101,C)

G01N-33/50(I,99,20060101,A,F) G01N-33/50(I,99,20060101,A,F)

G01N-33/50(I,M,98,20060101,C)

Current IPC: G01N-33/15(N,99,20060101,A,L) G01N-33/15(N,M,98,20060101,C)

G01N-33/50(I,99,20060101,A,F) G01N-33/50(I,99,20060101,A,F)

G01N-33/50(I,M,98,20060101,C)

Current ECLA ICO class: K61K-39:60P10

Original Abstract: The invention is based on the use of a basic reagent under basic conditions to separate conjugated saccharide from unconjugated components in a sample, ~e.g.~ a vaccine, by precipitation of the conjugated saccharide. The invention allows rapid and quantitative separation of conjugated and conjugated components, which may be exploited in analytical methods for quantifying unconjugated saccharide or carrier. Therefore, the separation of conjugated and unconjugated components using the invention may be advantageously combined with a quantitative saccharide or carrier analysis to provide

improved quality control for conjugate vaccines.

L'invention porte sur l'utilisation de reactifs basiques dans des conditions basiques pour separer des saccharides conjugues de saccharides non conjugues dans un echantillon, par exemple dans un vaccin, par precipitation du saccharide conjugue. L'invention permet une separation quantitative et rapide des composants conjugues d'avec les non conjugues, laquelle peut servir dans des methodes analytiques pour quantifier le saccharide non conjugues ou le vecteur. Ainsi, la separation de composants conjugues ou non conjugues peut se combiner avantageusement avec une analyse quantitative du saccharide ou du vecteur pour obtenir un controle de qualite ameliore des vaccins conjugues.

Publication No. WO 2007122512 A3 (Update 200841 E)

Publication Date: 20080124

Language: EN

Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BH BR
BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM
GT HN HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LR LS LT LU LY
MA MD MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD
SE SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR
HU IE IS IT KE LS LT LU LV MC MT MW MZ NA NL OA PL PT RO SD SE SI SK SL
SZ TR TZ UG ZM ZW

Original IPC: A61K-39/00(B,I,H,EP,20060101,A,L)

A61K-39/00(B,I,M,98,20060101,C) G01N-33/50(B,I,H,EP,20060101,A,F)

G01N-33/50(B,I,M,98,20060101,C)

Current IPC: A61K-39/00(B,I,H,EP,20060101,20080124,A,L)

A61K-39/00(B,I,H,EP,20060101,20080124,C,L)

G01N-33/50(B,I,H,EP,20060101,20080124,A,F)

G01N-33/50(B,I,H,EP,20060101,20080124,C,F)

Current ECLA ICO class: K61K-39:60P10

10/7/11 (Item 11 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0016568709

WPI ACC NO: 2007-283647/200727

XRAM Acc No: C2007-104024

Modifying bacterial ****capsular**** saccharide antigen comprises
converting a neutral group in the saccharide into a cationic group, and/or
converting a neutral group in the saccharide into an anionic group

Patent Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS); NOVARTIS

VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: BERTI F; TELFORD J; WACK A

Patent Family (5 patents, 116 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
WO 2007023386	A2	20070301	WO 2006IB2833	A	20060824	200727 B
EP 1937304	A2	20080702	EP 2006831540	A	20060824	200845 E
			WO 2006IB2833	A	20060824	
AU 2006283302	A1	20070301	AU 2006283302	A	20060824	200857 E
CA 2620416	A1	20070301	CA 2620416	A	20060824	200917 E
			WO 2006IB2833	A	20060824	
			CA 2620416	A	20080225	
US 20090136547	A1	20090528	WO 2006IB2833	A	20060824	200935 E
			US 200864663	A	20080825	

Priority Applications (no., kind, date): GB 200517353 A 20050824; GB
20067738 A 20060419

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
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WO 2007023386	A2	EN	56	35	
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National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BW
BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HN
HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA
MD MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE
SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES
FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO
SD SE SI SK SL SZ TR TZ UG ZM ZW

EP 1937304	A2	EN			PCT Application WO 2006IB2833
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Based on OPI patent WO 2007023386

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

AU 2006283302	A1	EN			Based on OPI patent WO 2007023386
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CA 2620416	A1	EN			PCT Application WO 2006IB2833
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PCT national entry CA 2620416

Based on OPI patent WO 2007023386

US 20090136547	A1	EN			PCT Application WO 2006IB2833
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Alerting Abstract WO A2

NOVELTY - Modifying a bacterial ****capsular**** saccharide antigen comprises: (a) if the saccharide is anionic, converting a neutral group in the saccharide into a cationic group; (b) if the saccharide is cationic, converting a neutral group in the saccharide into an anionic group; (c) if the saccharide is neutral, converting a first neutral group in the saccharide into an anionic group and converting a second neutral group in the saccharide into a cationic group, thus providing a modified saccharide.

DESCRIPTION - INDEPENDENT CLAIMS are:

- 1.a modified bacterial ****capsular**** saccharide, where the saccharide in its natural form includes repeating units that are cationic, but the saccharide in its modified form includes repeating units that are zwitterionic or anionic;
- 2.a modified bacterial ****capsular**** saccharide, where the saccharide in its natural form includes repeating units that are anionic, but the saccharide in its modified form includes repeating units that are zwitterionic or cationic;
- 3.a modified bacterial ****capsular**** saccharide, where the saccharide in its natural form includes repeating units that include either cationic or anionic groups, but the saccharide in its modified form includes repeating units that include both cationic and anionic groups; and
- 4.a modified bacterial ****capsular**** saccharide, where the saccharide includes a repeating unit that (a) includes both positively-charged and negatively-charged groups but (b) has no overall charge.

ACTIVITY - Antibacterial. No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - The method is useful for modifying a bacterial ****capsular**** saccharide antigen. The modified saccharide antigen can be used as active ingredients in compositions, e.g. vaccine, for the prevention and/or treatment of a bacterial infection, including diseases caused by ~S. agalactiae ~ , e.g. neonatal sepsis or bacteremia, neonatal pneumonia, neonatal meningitis, endometritis, osteomyelitis, or septic arthritis.

Technology Focus

BIOTECHNOLOGY - Preferred Modified Saccharide: The repeating units in the modified saccharide are zwitterionic. It has both a free carboxyl group and a free amino group. Preferably, the saccharide is from group B streptococcus or meningococcus. However, the bacterial ****capsular**** saccharide is not from ~Bacillus fragilis ~ or ~Streptococcus pneumoniae ~ . A neutral group is converted to a group with a lower pKb value. An N-acetyl group is converted to an amino or amine group. Positive and negative charges are present on different monosaccharide within a repeating unit, where the positive and negative charges are not on adjacent monosaccharides within the repeating unit. At least 50% of the saccharide's repeating units are zwitterionic repeating units. The saccharide is a substantially full-length ****capsular****polysaccharide****. Preferred Method: In modifying a bacterial ****capsular**** saccharide antigen, deacetylating an N-acetyl group on the bacterial ****capsular**** saccharide in the presence of a base or enzyme to provide a free amino group. It further comprises reacting the free amino group with an aldehyde to provide an amine group, where the aldehyde is formaldehyde and the amine is a secondary amine. The N-acetyl group is present on a NeuAc moiety and/or a GlcNac moiety. The method also comprises reacting a carboxyl group on the bacterial ****capsular**** saccharide with pyruvate. It further comprises reacting the pyruvate with a carbodiimide or acetic acid. The method also comprises reacting a carboxyl group on the bacterial ****capsular**** saccharide with TEMPO (2,2,6,6-tetramethyl-1-piperidine oxoammonium ion) in the presence of hypochlorite and bromide. It also comprises hydrolysis of a terminal galactose unit on the bacterial ****capsular**** saccharide with 0 3 /NO or beta-endogalactosidase. It also comprises oxidizing the terminal galactose unit with galactose oxidase to provide an aldehyde group the method also comprises reacting the aldehyde group with a free amino group or an amine group. It further comprises oxidizing NeuAc groups on the bacterial ****capsular**** saccharide to provide aldehyde groups and then reacting the aldehyde groups with a free amino group or an amine group.

Title Terms/Index Terms/Additional Words: MODIFIED; BACTERIA; CAPSULE; SACCHARIDE; ANTIGEN; COMPRISE; CONVERT; NEUTRAL; GROUP; CATION; ANION

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/02	A	I	L	B	20060101
A61K-0039/09	A	I	F	B	20060101
A61K-0039/095	A	I	L	B	20060101
A61P-0031/04	A	I	L	B	20060101
C08B-0037/00	A	I	L	B	20060101
A61K S					20060101
A61K-0039/02	C	I	L	B	20090101
A61K-0039/09	C	I	F	B	20060101
A61K-0039/09	C	I		B	20060101
A61K-0039/095	C	I	L	B	20090101
A61P-0031/00	C	I	L	B	20090101
C08B-0037/00	C	I	L	B	20060101
C08B-0037/00	C	I		B	20060101

ECLA: A61K-039/09A, A61K-039/095, C08B-037/00P

US Classification, Current Main: 424-244100; Secondary: 424-234100, 424-250100, 536-123100

US Classification, Issued: 424244.1, 536123.1, 424250.1, 424234.1

File Segment: CPI

DWPI Class: B04; D16

Manual Codes (CPI/A-M): B04-B04C1; B04-C02F; B14-A01; B14-C09; B14-K01; B14-N14; B14-N16; B14-S06; B14-S11B1; D05-A02; D05-H07

Original Publication Data by Authority

Australia

Publication No. AU 2006283302 A1 (Update 200857 E)
Publication Date: 20070301
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: WACK A
BERTI F
TELFORD J
Language: EN
Application: AU 2006283302 A 20060824 (Local application)
Priority: GB 200517353 A 20050824
GB 20067738 A 20060419
Related Publication: WO 2007023386 A (Based on OPI patent)
Original IPC: A61K-39/09(B,I,H,EP,20060101,20070705,A,F)
C08B-37/00(B,I,H,EP,20060101,20070705,A,L)
Current IPC: A61K-39/09(B,I,H,EP,20060101,20070705,A,F)
A61K-39/09(B,I,H,EP,20060101,20070705,C,F)
C08B-37/00(B,I,H,EP,20060101,20070705,A,L)
C08B-37/00(B,I,H,EP,20060101,20070705,C,L)
Current ECLA class: A61K-39/09A A61K-39/095

Canada

Publication No. CA 2620416 A1 (Update 200917 E)
Publication Date: 20070301
Assignee: NOVARTIS VACCINES&DIAGNOSTICS INC; IT (NOVS)
Inventor: BERTI F, IT
TELFORD J, IT
WACK A, IT
Language: EN
Application: CA 2620416 A 20060824 (Local application)
WO 2006IB2833 A 20060824 (PCT Application)
CA 2620416 A 20080225 (PCT national entry)
Priority: GB 200517353 A 20050824
GB 20067738 A 20060419
Related Publication: WO 2007023386 A (Based on OPI patent)
Original IPC: A61K-39/09(B,I,H,EP,20060101,20070705,A,F)
A61K-39/09(B,I,M,98,20060101,20070705,C)
C08B-37/00(B,I,H,EP,20060101,20070705,A,L)
C08B-37/00(B,I,M,98,20060101,20070705,C)
Current IPC: A61K-39/09(B,I,H,EP,20060101,20070705,A,F)
A61K-39/09(B,I,M,98,20060101,20070705,C)
C08B-37/00(B,I,H,EP,20060101,20070705,A,L)
C08B-37/00(B,I,M,98,20060101,20070705,C)
Current ECLA class: A61K-39/09A A61K-39/095 C08B-37/00P

EPO

Publication No. EP 1937304 A2 (Update 200845 E)
Publication Date: 20080702
**ZWITTERIONISATION KAPSELFÖRMIGER SACCHARIDE
ZWITTERIONIZATION OF CAPSULAR SACCHARIDES
ZWITTERIONISATION DE SACCHARIDES CAPSULAIRES**
Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100
Siena (SI), IT
Inventor: TELFORD, John, Novartis Vaccines and Diagnostics S.r.l., Via
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BERTI, Francesco, Novartis Vaccines and Diagnostics S.r.l., Via
Fiorentina, 1, I-53100 Siena, IT
WACK, Andreas, Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina,
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Agent: Marshall, Cameron John, Carpmaels Ransford, 43-45 Bloomsbury
Square, London WC1A 2RA, GB

Language: EN

Application: EP 2006831540 A 20060824 (Local application)

WO 2006IB2833 A 20060824 (PCT Application)

Priority: GB 200517353 A 20050824

GB 20067738 A 20060419

Related Publication: WO 2007023386 A (Based on OPI patent)

Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

Original IPC: A61K-39/09(B,I,H,EP,20060101,20080327,A,F)

A61K-39/09(B,I,M,98,20060101,20080327,C)

C08B-37/00(B,I,H,EP,20060101,20080327,A,L)

C08B-37/00(B,I,M,98,20060101,20080327,C)

Current IPC: A61K-39/09(B,I,H,EP,20060101,20080327,A,F)

A61K-39/09(B,I,H,EP,20060101,20080327,C,F)

C08B-37/00(B,I,H,EP,20060101,20080327,A,L)

C08B-37/00(B,I,H,EP,20060101,20080327,C,L)

Current ECLA class: A61K-39/09A A61K-39/095 C08B-37/00P

Original Abstract: Capsular saccharides are typically anionic. In the invention, however, cationic groups are introduced, such that the modified saccharide has a repeating unit which includes both cationic and anionic groups. These cationic and anionic groups can be balanced to give a zwitterionic repeating unit. These modifications can convert a saccharide that is normally a T-independent antigen into one that can activate T cells without requiring conjugation to a carrier. Typically, the invention modifies an anionic bacterial capsular saccharide antigen by converting a neutral group in the saccharide into a cationic group e.g. to change -NHAc to -NH3+.

United States

Publication No. US 20090136547 A1 (Update 200935 E)

Publication Date: 20090528

ZWITTERIONIZATION OF CAPSULAR SACCHARIDES

Assignee: NOVARTIS VACCINES AND DIAGNOSTICS SRL, Siena, IT (NOVS)

Telford, John, Siena, IT Residence: IT

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Wack, Andreas, Siena, IT Residence: IT

Inventor: Berti, Francesco, Siena, IT Residence: IT

Telford, John, Siena, IT Residence: IT

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Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY R338,
P.O. BOX 8097, Emeryville, CA, US

Language: EN

Application: US 200864663 A 20080825 (Local application)

WO 2006IB2833 A 20060824 (PCT Application)

Priority: GB 200517353 A 20050824

GB 20067738 A 20060419

Original IPC: A61K-39/02(B,I,H,US,20060101,20090528,A,L)

A61K-39/02(B,I,M,98,20060101,20090528,C)

A61K-39/09(B,I,H,US,20060101,20090528,A,F)

A61K-39/09(B,I,M,98,20060101,20090528,C)

A61K-39/095(B,I,H,US,20060101,20090528,A,L)

A61K-39/095(B,I,M,98,20060101,20090528,C)

A61P-31/00(B,I,M,98,20060101,20090528,C)

A61P-31/04(B,I,H,US,20060101,20090528,A,L)

C08B-37/00(B,I,H,US,20060101,20090528,A,L)

C08B-37/00(B,I,M,98,20060101,20090528,C)

Current IPC: A61K-39/02(B,I,H,US,20060101,20090528,A,L)

A61K-39/02(B,I,H,US,20090101,20090528,C,L)

A61K-39/09(B,I,H,US,20060101,20090528,A,F)

A61K-39/09(B,I,H,US,20090101,20090528,C,F)

A61K-39/095(B,I,H,US,20060101,20090528,A,L)

A61K-39/095(B,I,H,US,20090101,20090528,C,L)

A61P-31/00(B,I,H,US,20090101,20090528,C,L)

A61P-31/04(B,I,H,US,20060101,20090528,A,L)

C08B-37/00(B,I,H,US,20060101,20090528,A,L)

C08B-37/00(B,I,H,US,20090101,20090528,C,L)

Current ECLA class: A61K-39/09A A61K-39/095 C08B-37/00P

Current US Class (main): 424-244100

Current US Class (secondary): 424-234100 424-250100 536-123100

Original US Class (main): 424244.1

Original US Class (secondary): 536123.1 424250.1 424234.1

Original Abstract: Capsular saccharides are typically anionic. In the invention, however, cationic groups are introduced, such that the modified saccharide has a repeating unit which includes both cationic and anionic groups. These cationic and anionic groups can be balanced to give a zwitterionic repeating unit. These modifications can convert a saccharide that is normally a T-independent antigen into one that can activate T cells without requiring conjugation to a carrier. Typically, the invention modifies an anionic bacterial capsular saccharide antigen by converting a neutral group in the saccharide into a cationic group e.g. to change --NHAc to --NH3 +.

Claim:

1.

****1****. A method for modifying a bacterial capsular saccharide antigen, comprising a step of:

* (i) if the saccharide is anionic, converting a neutral group in the saccharide into a cationic group;

* (ii) if the saccharide is cationic, converting a neutral group in the saccharide into an anionic group;

* (iii) if the saccharide is neutral, converting a first neutral group in the saccharide into an anionic group and converting a second neutral group in the saccharide into a cationic group,

thereby

providing a modified saccharide.

WIPO

Publication No. WO 2007023386 A2 (Update 200727 B)

Publication Date: 20070301

****ZWITTERIONIZATION OF CAPSULAR SACCHARIDES**

ZWITTERIONISATION DE SACCHARIDES CAPSULAIRES**

Assignee: ~(except US)~ NOVARTIS VACCINES AND DIAGNOSTICS SRL, Via

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~(only US)~ TELFORD, John, Novartis Vaccines and Diagnostics S.r.l., Via

Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

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Inventor: TELFORD, John, Novartis Vaccines and Diagnostics S.r.l., Via

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WACK, Andreas, Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina,

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Agent: MARSHALL, Cameron, John et al., Carpmaels Ransford, 43-45

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Language: EN (56 pages, 35 drawings)

Application: WO 2006IB2833 A 20060824 (Local application)

Priority: GB 200517353 A 20050824

GB 20067738 A 20060419

Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BR BW
 BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HN
 HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA
 MD MG MK MN MW MX MY MZ NA NG NI NO NZ OM PG PH PL PT RO RS RU SC SD SE
 SG SK SL SM SV SY TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
 (Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR
 HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ
 TR TZ UG ZM ZW

Original IPC: A61K(99,20060101,S)

Current IPC: A61K(99,20060101,S)

Current ECLA class: A61K-39/09A A61K-39/095 C08B-37/00P

Original Abstract: Capsular saccharides are typically anionic. In the invention, however, cationic groups are introduced, such that the modified saccharide has a repeating unit which includes both cationic and anionic groups. These cationic and anionic groups can be balanced to give a zwitterionic repeating unit. These modifications can convert a saccharide that is normally a T-independent antigen into one that can activate T cells without requiring conjugation to a carrier. Typically, the invention modifies an anionic bacterial capsular saccharide antigen by converting a neutral group in the saccharide into a cationic group e.g. to change -NHAc to -NH3 +.

Les saccharides capsulaires sont typiquement anioniques. Neanmoins dans l'invention on introduit des groupes cationiques pour que le saccharide modifie comporte une unite repetitive incluant a la fois des groupes cationiques et anioniques. Ces groupes anioniques et cationiques peuvent etre equilibres pour donner une unite zwitterionique repetitive. Ces modifications peuvent convertir un saccharide qui est normalement un antigene T independant en un antigene activateur de cellules T sans necessiter de le conjuguer a un porteur. Typiquement, l'invention modifie un antigene anionique bacterien de saccharide capsulaire en convertissant un groupe neutre du saccharide en un groupe cationique, par exemple en changeant -NHAc en -NH3 +.

10/7/12 (Item 12 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0016028263

WPI ACC NO: 2006-559893/200657

Preparing conjugate of Streptococcus agalactiae ****capsular**** saccharide and carrier molecule comprises e.g. either oxidizing the saccharide, reductive amination, producing activated saccharide and reacting with carrier molecule

Patent Assignee: CHIRON SRL (CHIR); NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS); BERTI F (BERT-I); NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: BERTI F; FRANCESCO B

Patent Family (10 patents, 112 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2006082530	A2	20060810	WO 2006IB756	A	20060201	200657 B
EP 1846038	A2	20071024	EP 2006727404	A	20060201	200771 E
			WO 2006IB756	A	20060201	
AU 2006211052	A1	20060810	AU 2006211052	A	20060201	200780 E
WO 2006082530	A3	20080703				200845 E
JP 2008532930	W	20080821	WO 2006IB756	A	20060201	200857 E
			JP 2007553744	A	20060201	
MX 2007009277	A1	20070901	WO 2006IB756	A	20060201	200864 E
			MX 20079277	A	20070801	
US 20090043077	A1	20090212	WO 2006IB756	A	20060201	200912 E
			US 2008883614	A	20080318	
CN 101304765	A	20081112	CN 200680007342	A	20060201	200918 E

			WO 2006IB756	A	20060201	
ZA 200706969	A	20090128	ZA 20076969	A	20070820	200918 E
NZ 560432	A	20101224	NZ 560432	A	20060201	201106 E
			WO 2006IB756	A	20060201	

Priority Applications (no., kind, date): GB 20052095 A 20050201

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
WO 2006082530	A2	EN	48	9		
National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW						
Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW						
EP 1846038	A2	EN			PCT Application	WO 2006IB756 Based on OPI patent WO 2006082530
Regional Designated States,Original: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU						
AU 2006211052	A1	EN			Based on OPI patent	WO 2006082530
WO 2006082530	A3	EN				
National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW						
Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW						
JP 2008532930	W	JA	43		PCT Application	WO 2006IB756 Based on OPI patent WO 2006082530
MX 2007009277	A1	ES			PCT Application	WO 2006IB756 Based on OPI patent WO 2006082530
US 20090043077	A1	EN			PCT Application	WO 2006IB756
CN 101304765	A	ZH			PCT Application	WO 2006IB756 Based on OPI patent WO 2006082530
ZA 200706969	A	EN	56			
NZ 560432	A	EN			PCT Application	WO 2006IB756 Based on OPI patent WO 2006082530

Alerting Abstract WO A2

NOVELTY - Preparing a conjugate of a ~Streptococcus agalactiae ~*****capsular***** saccharide (I) and a carrier molecule, comprises: either oxidizing (I) to introduce aldehyde group, reductive amination of the aldehyde group, producing activated saccharide or de-N-acetylating (I), reacting the saccharide with bifunctional linker and reacting activated saccharide with a carrier molecule; or oxidizing (I) to introduce an aldehyde group into a galactose residue in the saccharide; and coupling to a carrier.

DESCRIPTION - Preparing a conjugate of a ~Streptococcus agalactiae ~*****capsular***** saccharide (I) and a carrier molecule, comprises: either oxidizing (I) to introduce an aldehyde group into at least one terminal sialic acid residue in the saccharide, reductive amination of the aldehyde group with ammonia or a primary amine, to give a methylamine; reacting the methylamine with a bifunctional linker, to give an activated saccharide; and reacting the activated saccharide with a carrier molecule; or de-N-acetylating (I) to give a de-N-acetylated saccharide; reacting the de-N-acetylated saccharide with a bifunctional linker to give an activated saccharide; and reacting the activated saccharide with a carrier molecule;

or oxidizing (I) to introduce an aldehyde group into at least one galactose residue in the saccharide, to give a modified galactose residue; and coupling the modified galactose residue to a carrier molecule.

An INDEPENDENT CLAIM is also included for the conjugate, comprising (I) moiety joined to a carrier via a linker moiety, where the linker moiety is attached to a sialic acid residue in the *****capsular***** saccharide moiety.

ACTIVITY - Antibacterial.

No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - The conjugate is useful for immunization.

ADVANTAGE - The process retains the sialic acid residues in a form of closure than the native *****polysaccharide***** and improves the coupling properties.

Technology Focus

BIOTECHNOLOGY - Preferred Process: The saccharide is chemically modified relative to the native *****capsular***** saccharide and is de-O-acetylated or de-N-acetylated (partially or fully). The aldehyde groups are introduced into 5-50% of the total sialic acid monosaccharide units. After conjugation, free and conjugated saccharides are separated. The oxidizing step introduces the aldehyde chemically and involves the use of a periodate salt to oxidize vicinal hydroxides. The reductive amination involves either ammonia or a primary amine of formula (NH₂ R), preferably an ammonium salt in combination with a reducing agent. The reactions with both the saccharide and the carrier involve amines, and where the linker has formula X-L-X, where the two X groups are N-oxysuccinimide and can react with the amines; and L is a linking moiety in the linker (adipic acid N-hydroxysuccinimide diester). The saccharide is, if necessary, substantially totally re-N-acetylated prior to reductive amination. The individual saccharide is attached to multiple carriers.

Preferred Components: In the conjugate, the saccharide is from one of GBS serotypes Ia, Ib, II, III or V and has its native form. The saccharide is shorter than the native *****capsular***** saccharide. The carrier is diphtheria toxoid, tetanus toxoid, CRM197, human serum albumin, an artificial protein comprising multiple human CD4+ T cell epitopes from various pathogen-derived antigens, protein D from ~H. influenzae ~, or a ~S. agalactiae ~ protein. The carrier is attached to the saccharide via an amine group in the carrier. The conjugate has a saccharide:protein ratio (w/w) of 1:5-5:1. The bifunctional linker is hetero or homo-bifunctional.

Title Terms/Index Terms/Additional Words: PREPARATION; CONJUGATE; STREPTOCOCCUS; CAPSULE; SACCHARIDE; CARRY; MOLECULAR; COMPRISE; OXIDATION; REDUCE; AMINATE; PRODUCE; ACTIVATE; REACT

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/09	A	I		R	20060101
A61K-0039/09	A	I	F	B	20060101
A61K-0039/09	A	I	L		20060101
A61K-0039/09	A	I	L	B	20060101
A61K-0039/385	A	I	L	B	20060101
A61K-0047/48	A	I		R	20060101
A61K-0047/48	A	I	F		20060101
A61K-0047/48	A	I	F	B	20060101
A61P-0031/04	A	I	L	B	20060101
A61P-0037/04	A	I	L		20060101
A61P-0037/04	A	I	L	B	20060101
A61P-0039/04	A	I	L	B	20060101
C07K-0001/00	A	I	L	B	20060101
C07K-0014/765	A	I	F	B	20060101
C08B-0037/00	A	I	L	B	20060101

A61P-0039/04 A I L 20060101
 A61K S I B 20090101
 A61K-0039/09 C I 20060101
 A61K-0039/09 C I R 20060101
 A61K-0039/09 C I F B 20060101
 A61K-0039/09 C I L B 20060101
 A61K-0039/385 C I L B 20060101
 A61K-0047/48 C I 20060101
 A61K-0047/48 C I R 20060101
 A61K-0047/48 C I F B 20060101
 A61P-0031/00 C I L B 20060101
 A61P-0037/00 C I 20060101
 A61P-0037/00 C I L B 20060101
 A61P-0039/00 C I L B 20060101
 C07K-0001/00 C I L B 20090101
 C07K-0014/435 C I F B 20090101
 C08B-0037/00 C I L B 20090101
 ECLA: A61K-039/09, A61K-047/48R2D, A61K-047/48R2L, A61K-047/48R2V
 ICO: K61K-039:60P10
 US Classification, Current Main: 530-363000; Secondary: 530-402000,
 536-124000
 US Classification, Issued: 530363, 536124, 530402

JP Classification

FI Term	Facet Rank Type
A61K-039/09	
A61K-039/385	
A61P-031/04	
A61P-037/04	

F-Term	View Point	Additional
Theme	+ Figure	Code
4C085		
4C201		
4C085	AA03	
4C085	BA14	
4C085	BA38	
4C085	BB11	
4C085	BB15	
4C085	BB24	
4C085	CC07	
4C085	CC24	
4C085	DD59	
4C085	DD62	
4C085	EE06	
4C085	FF24	

File Segment: CPI

DWPI Class: A11; A96; B04; D16
 Manual Codes (CPI/A-M): A03-A01; A12-V01; B04-B04C; B04-C02F; B04-N02;
 B04-N03; B14-A01; B14-S11B1; D05-H07

Original Publication Data by Authority

Australia

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 Publication Date: 20060810
 Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
 Inventor: BERTI F
 Language: EN
 Application: AU 2006211052 A 20060201 (Local application)

Priority: GB 20052095 A 20050201
Related Publication: WO 2006082530 A (Based on OPI patent)
Original IPC: A61K-47/48(B,I,H,EP,20060101,20060915,A,F)
Current IPC: A61K-39/09(R,I,M,EP,20060101,20080531,A)
A61K-39/09(R,I,M,EP,20060101,20080531,C)
A61K-47/48(B,I,H,EP,20060101,20060915,A,F)
A61K-47/48(B,I,H,EP,20060101,20060915,C,F)
Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V
Current ECLA ICO class: K61K-39:60P10

China

Publication No. CN 101304765 A (Update 200918 E)

Publication Date: 20081112

Conjugation of streptococcal capsular saccharides

Assignee: NOVARTIS VACCINES DIAGNOSTICS INC; IT (NOVS)

Inventor: FRANCESCO, BERTI, IT

Language: ZH

Application: CN 200680007342 A 20060201 (Local application)

WO 2006IB756 A 20060201 (PCT Application)

Priority: GB 20052095 A 20050201

Related Publication: WO 2006082530 A (Based on OPI patent)

Original IPC: A61K-39/09(I,CN,20060101,A,L) A61K-39/09(I,M,98,20060101,C)

A61K-47/48(I,CN,20060101,A,F) A61K-47/48(I,M,98,20060101,C)

A61P-37/00(I,M,98,20060101,C) A61P-37/04(I,CN,20060101,A,L)

Current IPC: A61K-39/09(A,I,CN,20060101,A,L) A61K-39/09(I,M,98,20060101,C)

A61K-47/48(I,CN,20060101,A,F) A61K-47/48(I,M,98,20060101,C)

A61P-37/00(I,M,98,20060101,C) A61P-37/04(I,CN,20060101,A,L)

Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V

Current ECLA ICO class: K61K-39:60P10

Original Abstract: This invention claims three conjugation methods for use with the capsular saccharide of *Streptococcus agalactiae*. In the first method, reductive amination of oxidised sialic acid residue side chains is used, but the aldehyde groups are first aminated, and then the amine is coupled to a carrier via a linker. In the second method, sialic acid residues and/or N-acetyl-glucosamine residues are de-N-acetylated to give amine groups, and the amine groups are coupled to a carrier protein via a linker. In the third method, linkage is via galactose residues in the capsular saccharide rather than sialic acid residues, which can conveniently be achieved using galactose oxidase.

Claim: [CLAIM 1] A process for preparing a conjugate of a *Streptococcus agalactiae* capsular saccharide and a carrier molecule, comprising the steps of: (a) oxidising a *S.agalactiae* capsular saccharide in order to introduce an aldehyde group into at least one terminal sialic acid residue in the saccharide; (b) subjecting the aldehyde group to reductive amination with ammonia or a primary amine, to give a -CH₂-linked amine; (c) reacting the -CH₂-linked amine with a bifunctional linker, to give an activated saccharide; and (d) reacting the activated saccharide with a carrier molecule, thereby giving the conjugate.

[CLAIM 2] A conjugate, comprising a *Streptococcus agalactiae* capsular saccharide moiety joined to a carrier via a linker moiety, wherein the linker moiety is attached to a sialic acid residue in the capsular saccharide moiety.

[CLAIM 3] The conjugate according to claim 2, obtainable by the process according to claim 1.

[CLAIM 4] The conjugate or process according to any preceding claim, wherein the saccharide is from one of GBS serotypes Ia, Ib, II, III or V.

[CLAIM 5] The conjugate or process according to any preceding claim, wherein the saccharide has its native form.

[CLAIM 6] The conjugate or process according to any one of claims 1 to 4, wherein the saccharide is shorter than the native capsular saccharide.

- [CLAIM 7] The conjugate or process according to any one of claims 1 to 4, wherein the saccharide is chemically modified relative to the native capsular saccharide.
- [CLAIM 8] The conjugate or process according to claim 7, wherein the saccharide is de-O-acetylated partially or fully.
- [CLAIM 9] The conjugate or process according to claim 7, wherein the saccharide is de-N-acetylated partially or fully.
- [CLAIM 10] The conjugate or process according to any preceding claim, wherein the carrier is diphtheria toxoid, tetanus toxoid, CRM 197, human serum albumin, an artificial protein comprising multiple human CD4+T cell epitopes from various pathogen-derived antigens, protein D from *H. influenzae*, or a *S. agalactiae* protein.
- [CLAIM 11] The conjugate or process according to any preceding claim, wherein the carrier is attached to the saccharide via a -NH₂ group in the carrier.
- [CLAIM 12] The conjugate or process according to any preceding claim, wherein the conjugate has a saccharide: protein ratio (w/w) of between 1:5 and 5:1.
- [CLAIM 13] The conjugate or process according to any preceding claim, wherein aldehyde groups are introduced into between 5% and 50% of the total sialic acid monosaccharide units.
- [CLAIM 14] The process according to any preceding claim, wherein, after conjugation, free and conjugated saccharides are separated.
- [CLAIM 15] The process according to any preceding claim, wherein step (a) introduces the aldehyde chemically.
- [CLAIM 16] The process according to claim 15, wherein step (a) involves the use of a periodate salt to oxidise vicinal hydroxides.
- [CLAIM 17] The process according to any preceding claim, wherein reductive amination involves either ammonia or a primary amine (NH₂R).
- [CLAIM 18] The process according to claim 17, wherein reductive amination involves an ammonium salt in combination with a reducing agent.
- [CLAIM 19] The process according to any preceding claim, wherein the bifunctional linker is heterobifunctional.
- [CLAIM 20] The process according to any one of claims 1 to 18, wherein the bifunctional linker is homobifunctional.
- [CLAIM 21] The process according to claim 20, where the reactions with both the saccharide and the carrier involve amines, and wherein the linker has formula X-L-X, wherein: the two X groups are the same as each other and can react with the amines; and L is a linking moiety in the linker.
- [CLAIM 22] The process according to claim 21, wherein X is N-oxysuccinimide.
- [CLAIM 23] The process according to claim 22, wherein the linker is adipic acid N-hydroxysuccinimide diester.
- [CLAIM 24] The process according to any preceding claim, wherein the saccharide is, if necessary, substantially totally re-N-acetylated prior to reductive amination.
- [CLAIM 25] The process or conjugate according to any preceding claim, wherein an individual saccharide is attached to multiple carriers.
- [CLAIM 26] A process for preparing a conjugate of a *Streptococcus agalactiae* capsular saccharide and a carrier molecule, comprising the steps of: (a) de-N-acetylating the capsular saccharide, to give a de-N-acetylated saccharide; (b) reacting the de-N-acetylated saccharide with a bifunctional linker, to give an activated saccharide; and (c) reacting the activated saccharide with a carrier molecule, thereby giving the conjugate.
- [CLAIM 27] A process for preparing a conjugate of a capsular saccharide and a carrier molecule, comprising the steps of: (a) oxidising a capsular saccharide in order to introduce an aldehyde group into at least one galactose residue in the saccharide, to give a modified galactose residue; and (b) coupling the modified galactose residue to a carrier molecule.

EPO

Publication No. EP 1846038 A2 (Update 200771 E)

Publication Date: 20071024

**KONJUGATION VON STREPTOKOKKEN-KAPSELSACCHARIDEN

CONJUGATION OF STREPTOCOCCAL CAPSULAR SACCHARIDES

CONJUGAISON DE SACCHARIDES CAPSULAIRES STREPTOCOCCIQUES**

Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100
Siena (SI), IT (NOVS)

Inventor: BERTI, Francesco, Chiron Vaccines, Via Fiorentina, 1, I-53100
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Square, London WC1A 2RA, GB

Language: EN

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Related Publication: WO 2006082530 A (Based on OPI patent)

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FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU

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Current IPC: A61K-39/09(B,I,H,EP,20060101,20080905,A,L)

A61K-39/09(B,I,H,EP,20060101,20080905,C,L)

A61K-47/48(B,I,H,EP,20060101,20080905,A,F)

A61K-47/48(B,I,H,EP,20060101,20080905,C,F)

A61P-39/00(B,I,H,EP,20060101,20080905,C,L)

A61P-39/04(B,I,H,EP,20060101,20080905,A,L)

Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V

Current ECLA ICO class: K61K-39:60P10

Original Abstract: Three conjugation methods for use with the capsular
saccharide of Streptococcus agalactiae. In the first method, reductive
amination of oxidised sialic acid residue side chains is used, but the
aldehyde groups are first aminated, and then the amine is coupled to a
carrier via a linker. In the second method, sialic acid residues and/or
N-acetyl-glucosamine residues are de-N-acetylated to give amine groups,
and the amine groups are coupled to a carrier protein via a linker. In
the third method, linkage is via galactose residues in the capsular
saccharide rather than sialic acid residues, which can conveniently be
achieved using galactose oxidase.

Japan

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Related Publication: WO 2006082530 A (Based on OPI patent)

Original IPC: A61K-39/09(B,I,H,JP,20060101,20080725,A,F)

A61K-39/09(B,I,M,98,20060101,20080725,C)

A61K-39/385(B,I,H,JP,20060101,20080725,A,L)

A61K-39/385(B,I,M,98,20060101,20080725,C)

A61P-31/00(B,I,M,98,20060101,20080725,C)

A61P-31/04(B,I,H,JP,20060101,20080725,A,L)

A61P-37/00(B,I,M,98,20060101,20080725,C)

A61P-37/04(B,I,H,JP,20060101,20080725,A,L)

Current IPC: A61K-39/09(B,I,H,JP,20060101,20080725,A,F)

A61K-39/09(B,I,H,JP,20060101,20080725,C,F)

A61K-39/385(B,I,H,JP,20060101,20080725,A,L)

A61K-39/385(B,I,H,JP,20060101,20080725,C,L)

A61K-47/48(R,I,M,EP,20060101,20060722,A)

A61K-47/48(R,I,M,EP,20060101,20060722,C)
A61P-31/00(B,I,H,JP,20060101,20080725,C,L)
A61P-31/04(B,I,H,JP,20060101,20080725,A,L)
A61P-37/00(B,I,H,JP,20060101,20080725,C,L)
A61P-37/04(B,I,H,JP,20060101,20080725,A,L)
Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V
Current ECLA ICO class: K61K-39:60P10
Current JP F-Terms: 4C085 4C201 4C085AA03 4C085BA14 4C085BA38 4C085BB11
4C085BB15 4C085BB24 4C085CC07 4C085CC24 4C085DD59 4C085DD62 4C085EE06
4C085FF24

Mexico

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Publication Date: 20070901
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: BERTI F
Language: ES
Application: WO 2006IB756 A 20060201 (PCT Application)
MX 20079277 A 20070801 (Local application)
Priority: GB 20052095 A 20050201
Related Publication: WO 2006082530 A (Based on OPI patent)
Original IPC: A61K-47/48(I,MX,20060101,A,F) A61K-47/48(I,M,98,20060101,C)
Current IPC: A61K-47/48(I,MX,20060101,A,F) A61K-47/48(I,M,98,20060101,C)

New Zealand

Publication No. NZ 560432 A (Update 201106 E)
Publication Date: 20101224
Assignee: NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)
Inventor: BERTI F
Language: EN
Application: NZ 560432 A 20060201 (Local application)
WO 2006IB756 A 20060201 (PCT Application)
Priority: GB 20052095 A 20050201
Related Publication: WO 2006082530 A (Based on OPI patent)
Original IPC: A61K-39/09(I,NZ,20060101,A,L) A61K-47/48(I,NZ,20060101,A,F)
A61P-39/04(I,NZ,20060101,A,L)
Current IPC: A61K-39/09(I,NZ,20060101,A,L) A61K-47/48(I,NZ,20060101,A,F)
A61P-39/04(I,NZ,20060101,A,L)

United States

Publication No. US 20090043077 A1 (Update 200912 E)
Publication Date: 20090212
Conjugation of streptococcal capsular saccharides
Assignee: Berti, Francesco, Siena, IT Residence: IT (BERT-I)
Inventor: Berti, Francesco, Siena, IT Residence: IT
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P.O. BOX 8097, Emeryville, CA, US
Language: EN
Application: US 2008883614 A 20080318 (Local application)
WO 2006IB756 A 20060201 (PCT Application)
Priority: GB 20052095 A 20050201
Original IPC: C07K-1/00(B,I,H,US,20060101,20090212,A,L)
C07K-1/00(B,I,M,98,20060101,20090212,C)
C07K-14/435(B,I,M,98,20060101,20090212,C)
C07K-14/765(B,I,H,US,20060101,20090212,A,F)
C08B-37/00(B,I,H,US,20060101,20090212,A,L)
C08B-37/00(B,I,M,98,20060101,20090212,C)
Current IPC: A61K-39/09(R,I,M,EP,20060101,20080531,A)
A61K-39/09(R,I,M,EP,20060101,20080531,C)
A61K-47/48(R,I,M,EP,20060101,20060722,A)
A61K-47/48(R,I,M,EP,20060101,20060722,C)
C07K-1/00(B,I,H,US,20060101,20090212,A,L)

C07K-1/00(B,I,H,US,20090101,20090212,C,L)
C07K-14/435(B,I,H,US,20090101,20090212,C,F)
C07K-14/765(B,I,H,US,20060101,20090212,A,F)
C08B-37/00(B,I,H,US,20060101,20090212,A,L)
C08B-37/00(B,I,H,US,20090101,20090212,C,L)

Current US Class (main): 530-363000

Current US Class (secondary): 530-402000 536-124000

Original US Class (main): 530363

Original US Class (secondary): 536124 530402

Original Abstract: Three conjugation methods for use with the capsular saccharide of ~Streptococcus agalactiae~. In the first method, reductive amination of oxidised sialic acid residue side chains is used, but the aldehyde groups are first aminated, and then the amine is coupled to a carrier via a linker. In the second method, sialic acid residues and/or N-acetyl-glucosamine residues are de-N-acetylated to give amine groups, and the amine groups are coupled to a carrier protein via a linker. In the third method, linkage is via galactose residues in the capsular saccharide rather than sialic acid residues, which can conveniently be achieved using galactose oxidase.

Claim:

1.

****1****. A process for preparing a conjugate of a ~Streptococcus agalactiae~ capsular saccharide and a carrier molecule, comprising the steps of: (a) oxidising a ~S. agalactiae~ capsular saccharide in order to introduce an aldehyde group into at least one terminal sialic acid residue in the saccharide; (b) subjecting the aldehyde group to reductive amination with ammonia or a primary amine, to give a --CH₂-linked amine; (c) reacting the --CH₂-linked amine with a bifunctional linker, to give an activated saccharide; and (d) reacting the activated saccharide with a carrier molecule, thereby giving the conjugate.

WIPO

Publication No. WO 2006082530 A2 (Update 200657 B)

Publication Date: 20060810

****CONJUGATION OF STREPTOCOCCAL CAPSULAR SACCHARIDES**

CONJUGAISON DE SACCHARIDES CAPSULAIRES STREPTOCOCCIQUES**

Assignee: ~(except US)~ CHIRON SRL, Via Fiorentina 1, I-53100 Siena, IT

Residence: IT Nationality: IT (CHIR)

~(only US)~ BERTI, Francesco, Chiron Vaccines, Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

Inventor: BERTI, Francesco, Chiron Vaccines, Via Fiorentina, 1, I-53100 Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John et al., Carpmiels Ransford, 43-45

Bloomsbury Square, London WC1A 2RA, GB

Language: EN (48 pages, 9 drawings)

Application: WO 2006IB756 A 20060201 (Local application)

Priority: GB 20052095 A 20050201

Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BR BW
BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR
HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG
MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM
SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR
HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ
TR TZ UG ZM ZW

Original IPC: A61K-47/48(B,I,H,EP,20060101,A,F)

Current IPC: A61K-39/09(R,I,M,EP,20060101,20080531,A)

A61K-39/09(R,I,M,EP,20060101,20080531,C)

A61K-47/48(B,I,H,EP,20060101,20060810,A,F)

A61K-47/48(B,I,H,EP,20060101,20060810,C,F)

Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V

Current ECLA ICO class: K61K-39:60P10

Original Abstract: Three conjugation methods for use with the capsular saccharide of Streptococcus agalactiae. In the first method, reductive amination of oxidised sialic acid residue side chains is used, but the aldehyde groups are first aminated, and then the amine is coupled to a carrier via a linker. In the second method, sialic acid residues and/or N-acetyl-glucosamine residues are de-N-acetylated to give amine groups, and the amine groups are coupled to a carrier protein via a linker. In the third method, linkage is via galactose residues in the capsular saccharide rather than sialic acid residues, which can conveniently be achieved using galactose oxidase.

L'invention concerne trois procedes de conjugaison destines a etre utilises avec les saccharides capsulaires de Streptococcus agalactiae. Dans le premier procede, l'amination reductrice de chaines laterales de restes d'acide sialique oxyde est utilisee, mais les groupes aldehyde sont tout d'abord amines, puis l'amine est couplee a un support via un lieur. Dans le second procede, des residus d'acide sialique et/ou des residus de N-acetyl-glucosamine sont de-N-acetyles pour donner des groupes amine, et les groupes amine sont couples a une proteine via un lieur. Dans le troisieme procede, la liaison s'effectue via des residus de galactose dans le saccharide capsulaire plutot que dans les residus d'acide sialique qui peuvent etre facilement obtenus au moyen de galactose oxydase.

Publication No. WO 2006082530 A3 (Update 200845 E)

Publication Date: 20080703

Assignee: NOVARTIS VACCINES DIAGNOSTICS INC; IT (NOVS)

Inventor: BERTI F

Language: EN

Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

Original IPC: A61K-39/09(B,I,H,EP,20060101,A,L)

A61K-39/09(B,I,M,98,20060101,C) A61K-47/48(B,I,H,EP,20060101,A,F)

A61K-47/48(B,I,M,98,20060101,C) A61P-37/00(B,I,M,98,20060101,C)

A61P-37/04(B,I,H,EP,20060101,A,L)

Current IPC: A61K-39/09(B,I,H,EP,20060101,20080703,A,L)

A61K-39/09(B,I,H,EP,20060101,20080703,C,L)

A61K-47/48(B,I,H,EP,20060101,20080703,A,F)

A61K-47/48(B,I,H,EP,20060101,20080703,C,F)

A61P-37/00(B,I,H,EP,20060101,20080703,C,L)

A61P-37/04(B,I,H,EP,20060101,20080703,A,L)

Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V

Current ECLA ICO class: K61K-39:60P10

South Africa

Publication No. ZA 200706969 A (Update 200918 E)

Publication Date: 20090128

Assignee: NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: BERTI F

Language: EN (56 pages)

Application: ZA 20076969 A 20070820 (Local application)

Priority: GB 20052095 A 20050201

Original IPC: A61K(A)

Current IPC: A61K(B,A,I,H,ZA,20090101,20090820,S)

A61K-39/09(R,I,M,EP,20060101,20080531,A)

A61K-39/09(R,I,M,EP,20060101,20080531,C)

A61K-47/48(R,I,M,EP,20060101,20060722,A)

A61K-47/48(R,I,M,EP,20060101,20060722,C)
Current ECLA class: A61K-39/09 A61K-47/48R2D A61K-47/48R2L A61K-47/48R2V
Current ECLA ICO class: K61K-39:60P10

10/7/13 (Item 13 from file: 351)
DIALOG(R)File 351:Derwent WPI
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0016018634
WPI ACC NO: 2006-550264/200656
XRAM Acc No: C2006-171980
Purifying Streptococcus agalactiae ****capsular**** ****polysaccharide****
involves treating suspension of streptococcal proteins, nucleic acids and
****polysaccharide**** with aqueous metal cation and alcohol, and treating
aqueous material with cationic detergent
Patent Assignee: CHIRON SRL (CHIR); NOVARTIS VACCINES & DIAGNOSTICS INC
(NOVS); NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS); COSTANTINO P (COST-I)
Inventor: COSTANTINO P; PAOLO C
Patent Family (11 patents, 112 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 2006082527	A2	20060810	WO 2006IB626	A	20060201	200656 B
EP 1848746	A2	20071031	EP 2006710574	A	20060201	200771 E
			WO 2006IB626	A	20060201	
AU 2006211049	A1	20060810	AU 2006211049	A	20060201	200801 E
CN 101146829	A	20080319	CN 200680007341	A	20060201	200841 E
			WO 2006IB626	A	20060201	
JP 2008528052	W	20080731	WO 2006IB626	A	20060201	200853 E
			JP 2007553742	A	20060201	
MX 2007009276	A1	20070901	WO 2006IB626	A	20060201	200864 E
			MX 20079276	A	20070801	
ZA 200706968	A	20081126	ZA 20076968	A	20070820	200914 E
US 20100063270	A1	20100311	WO 2006IB626	A	20060201	201019 E
			US 2008883615	A	20080512	
NZ 560928	A	20100528	NZ 560928	A	20060201	201050 E
			WO 2006IB626	A	20060201	
EP 2270056	A2	20110105	EP 2006710574	A	20060201	201104 E
			EP 2010179778	A	20060201	
EP 2270056	A3	20110302	EP 2006710574	A	20060201	201117 E
			EP 2010179778	A	20060201	

Priority Applications (no., kind, date): GB 20052096 A 20050201

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2006082527	A2	EN	39	10	

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BW
BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR
HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG
MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM
SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES
FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO
SD SE SI SK SL SZ TR TZ UG ZM ZW

EP 1848746 A2 EN PCT Application WO 2006IB626
Based on OPI patent WO 2006082527

Regional Designated States,Original: AL AT BA BE BG CH CY CZ DE DK EE ES
FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU
AU 2006211049 A1 EN Based on OPI patent WO 2006082527
CN 101146829 A ZH PCT Application WO 2006IB626
Based on OPI patent WO 2006082527

JP 2008528052	W	JA	38	PCT Application WO 2006IB626
				Based on OPI patent WO 2006082527
MX 2007009276	A1	ES		PCT Application WO 2006IB626
				Based on OPI patent WO 2006082527
ZA 200706968	A	EN	44	
US 20100063270	A1	EN		PCT Application WO 2006IB626
NZ 560928	A	EN		PCT Application WO 2006IB626
				Based on OPI patent WO 2006082527
EP 2270056	A2	EN		Division of application EP 2006710574

Division of patent EP 1848746

Regional Designated States, Original: AL AT BA BE BG CH CY CZ DE DK EE ES
FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU
EP 2270056 A3 EN Division of application EP 2006710574

Division of patent EP 1848746

Regional Designated States, Original: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR AL BA HR MK YU

Alerting Abstract WO A2

NOVELTY - Purification of ~Streptococcus agalactiae ~ ****capsular****
****polysaccharide**** involves treating a suspension comprising
streptococcal proteins, nucleic acids and ****capsular****
****polysaccharide**** with an aqueous metal cation and an alcohol to
precipitate nucleic acids and proteins; separating the precipitated
material from the aqueous material; and treating the aqueous material with
a cationic detergent to precipitate the ****capsular****
****polysaccharide****.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a composition
comprising the purified ~Streptococcus agalactiae ~ ****capsular****
****polysaccharide****.

ACTIVITY - Antibacterial.

No biological data given.

MECHANISM OF ACTION - Vaccine.

USE - For purification of ~Streptococcus agalactiae ~ ****capsular****
****polysaccharide**** (claimed) useful in vaccine for bacterial
infections.

ADVANTAGE - The process avoids the need for DNase, RNase and/or protease
treatment; is completed in less than three days after release of saccharide
from the bacteria and has yield of about 60 (preferably 90)%. The
saccharides have a very low protein contamination and a very low absorbance
at 280 nm. The purity of the saccharide is at least 89 (preferably >=98)%.

Technology Focus

BIOTECHNOLOGY - Preferred Composition: The composition has UV absorbance
at 280 nm of less than 0.20. The ratio of UV absorbance of the composition
at 280 nm to the UV absorbance at 260 nm is greater than 0.85. The UV
absorbance spectrum of the composition between 220 - 300 nm does exhibit
either a shoulder or peak at around 270 nm. The UV spectrum of the
composition between 250 - 275 nm has neither a maximum point nor a point of
inflexion. The purity of the saccharide is at least 89% relative to the
total weight of saccharide, protein and nucleic acid in the composition.

Preferred Components: The ****polysaccharide**** is from ~S. agalactiae ~
serotype selected from Ia, Ib, II, III, IV, V, VI, VII or VIII (preferably
Ia, Ib, II, III or V). The ****polysaccharide**** is a full-length
****capsular****polysaccharide**** and has a molecular weight greater
than 30 kDa. The saccharide is partially or fully de-O-acetylated or
de-N-acetylated. The suspension is the supernatant from a centrifuged ~S.
agalactiae ~ culture and is prepared by treating (preferably chemically,
enzymatically or by base extraction), ~S. agalactiae ~ such that the
****capsular**** saccharide is released. The ****capsular**** saccharide is
released by treatment with both mutanolysin and

beta-N-acetylglucosaminidase, or by treatment with a type II phosphodiesterase.

INORGANIC CHEMISTRY - The aqueous metal cation is monovalent or divalent (preferably Mg ++ , Mn4 ++ or Ca ++ (preferably Ca ++ (10 - 500 mM)). The aqueous medium comprises Mg ++ , Mn ++ or Ca ++ .

ORGANIC CHEMISTRY - Preferred Method: The alcohol is added to the suspension to give a final alcohol concentration of 10 - 50%. The precipitate is separated by centrifugation. The supernatant after centrifugation is subjected to microfiltration. A step of diafiltration is performed after step (a) and before step (c). The method further involves re-solubilizing the saccharide into aqueous medium or into alcoholic medium. The alcoholic medium has a final concentration of 70 - 95%.

Preferred Components: The alcohol is a lower alcohol (preferably ethanol or isopropanol). The cationic salt in step (c) is a tetrabutylammonium or cetyltrimethylammonium salt, such as cetyltrimethylammonium bromide.

Title Terms/Index Terms/Additional Words: PURIFICATION; STREPTOCOCCUS; CAPSULE; ****POLYSACCHARIDE****; TREAT; SUSPENSION; PROTEIN; NUCLEIC; ACID; AQUEOUS; METAL; CATION; ALCOHOL; MATERIAL; DETERGENT

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/02	A	I	L	B	20060101
A61P-0031/04	A	I	L	B	20060101
C08B-0037/00	A	I	L	B	20060101
C08B-0037/00	A	I	F		20060101
C08B-0037/00	A	I		R	20060101
C08B-0037/00	A	I	F	B	20060101
C12P-0019/04	A	I	F	B	20060101
C12P-0019/04	A	I	L		20060101
C12P-0019/04	A	I		R	20060101
C12P-0019/04	A	I	L	B	20060101
A61K-0039/02	C	I	L	B	20060101
A61P-0031/00	C	I	L	B	20060101
C08B S I			B		20090101
C08B-0037/00	C	I	L	B	20060101
C08B-0037/00	C	I			20060101
C08B-0037/00	C	I		R	20060101
C08B-0037/00	C	I		B	20060101
C08B-0037/00	C	I	F	B	20100101
C12P S I			B		20090101
C12P-0019/00	C	I	F	B	20060101
C12P-0019/00	C	I			20060101
C12P-0019/00	C	I		R	20060101
C12P-0019/00	C	I	L	B	20100101

ECLA: C08B-037/00K, C08B-037/00P, C12P-019/04

US Classification, Current Main: 536-123100

US Classification, Issued: 536123.1

JP Classification

FI Term	Facet Rank Type
A61K-039/02	
A61P-031/04	
C08B-037/00	P
C12P-019/04	C ZNA

F-Term View Point Additional

Theme + Figure Code

4B064

4C085

4C090

4C201

4C085	AA03
4C090	AA04
4C090	AA09
4B064	AF11
4C085	BA14
4C090	BA94
4C090	BC25
4C090	BD37
4B064	CA02
4C090	CA18
4C085	CC07
4B064	CC15
4B064	CE03
4B064	CE06
4B064	CE11
4B064	DA01
4C090	DA23
4C085	DD37

File Segment: CPI

DWPI Class: B04; D16

Manual Codes (CPI/A-M): B04-C02F; B04-E01; B04-L05; B04-N03; B05-A01B;
B05-A03A1; B10-A22; B10-E04D; B11-B03; B14-S11B1; D05-A02C; D05-H07;
D05-H13

Original Publication Data by Authority

Australia

Publication No. AU 2006211049 A1 (Update 200801 E)

Publication Date: 20060810

Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)

Inventor: COSTANTINO P

Language: EN

Application: AU 2006211049 A 20060201 (Local application)

Priority: GB 20052096 A 20050201

Related Publication: WO 2006082527 A (Based on OPI patent)

Original IPC: C08B-37/00(B,I,H,EP,20060101,20061116,A,F)

C12P-19/04(B,I,H,EP,20060101,20061116,A,L)

Current IPC: C08B-37/00(B,I,H,EP,20060101,20061116,A,F)

C08B-37/00(B,I,H,EP,20060101,20061116,C,F)

C12P-19/00(B,I,H,EP,20060101,20061116,C,L)

C12P-19/04(B,I,H,EP,20060101,20061116,A,L)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

China

Publication No. CN 101146829 A (Update 200841 E)

Publication Date: 20080319

Purification of streptococcal capsular polysaccharide

Assignee: CHIRON SRL; IT (CHIR)

Inventor: PAOLO C

Language: ZH

Application: CN 200680007341 A 20060201 (Local application)

WO 2006IB626 A 20060201 (PCT Application)

Priority: GB 20052096 A 20050201

Related Publication: WO 2006082527 A (Based on OPI patent)

Original IPC: C08B-37/00(I,CN,20060101,A,F) C08B-37/00(I,M,98,20060101,C)

C12P-19/00(I,M,98,20060101,C) C12P-19/04(I,CN,20060101,A,L)

Current IPC: C08B-37/00(B,I,H,CN,20060101,20080319,A,F)

C08B-37/00(B,I,H,CN,20060101,20080319,C,F)

C12P-19/00(B,I,H,CN,20060101,20080319,C,L)

C12P-19/04(B,I,H,CN,20060101,20080319,A,L)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

Original Abstract: A purification method for the capsular polysaccharide of streptococcus agalactiae, wherein, the saccharide is initially treated by an aqueous mixture of an alcohol and a calcium salt, then it is processed with precipitation by a cationic detergent. This method can be completed in less than three days and has a yield of around 60%. It avoids the need for DNase, RNase and/or protease treatment. The saccharides obtained by this method have a very low protein contamination and a very low absorbance at 280nm.

Claim: [CLAIM 1] A purification method for the capsular polysaccharide of streptococcus agalactiae, including following steps, (a) using an aqueous positive ion and alcohol to treat the mixture suspension containing streptococcus protein, nucleic acid and capsular polysaccharide to deposit nucleic acid and protein; (b) separating the deposited substance and aqueous substance; and (c) using a cationic detergent to treat the aqueous substance so as to deposit the capsular polysaccharide.

[CLAIM 2] The method according to claim 1, wherein, said polysaccharose is selected from none-streptococcus lactis serological type of Ia, Ib, II, III, IV, V, VI, VII or VIII.

[CLAIM 3] The method according to claim 2, wherein, said serological type is selected from Ia, Ib, II, III or V.

[CLAIM 4] The method according to any one of said claims, wherein, said polysaccharose is basically capsular polysaccharide with whole length.

[CLAIM 5] The method according to any one of said claims, wherein, molecular weight of said polysaccharose is more than 30 kDa.

[CLAIM 6] The method according to any one of said claims, wherein, said saccharides are partially or completely deoxy-acetylated.

[CLAIM 7] The method according to any one of said claims, wherein, said saccharides are partially or completely denitrifying-acetylated.

[CLAIM 8] The method according to any one of said claims, wherein, said mixture suspension is supernatant fluid of centrifugal streptococcus agalactiae culture.

[CLAIM 9] The method according to any one of claims 1-7, wherein, the capsular polysaccharide is released by treating the streptococcus agalactiae so as to prepare said mixture suspension.

[CLAIM 10] The method according to claim 9, wherein, said capsular polysaccharide is released by a chemical treatment or an enzyme treatment.

[CLAIM 11] The method according to claim 10, wherein, said capsular polysaccharide is released by a alkali abstraction.

[CLAIM 12] The method according to claim 10, wherein, said capsular polysaccharide is released by a treatment using mutanolysin and beta-N-acetyl amidogen heteroside enzyme.

[CLAIM 13] The method according to claim 10, wherein, said capsular polysaccharide is released by a treatment of II type phosphodiesterase.

[CLAIM 14] The method according to any one of said claims, wherein, said alcohol is a low-grade alcohol.

[CLAIM 15] The method according to claim 14, wherein, said alcohol is ethanol or isopropanol.

[CLAIM 16] The method according to any one of said claims, wherein, said mixture suspension is added with said alcohol until concentration of the alcohol is between 10-50%.

[CLAIM 17] The method according to any one of said claims, wherein, said aqueous metal positive ion is monovalent or divalent.

[CLAIM 18] The method according to claim 17, wherein, said positive ion is Mg++, Mn++ or Ca++.

[CLAIM 19] The method according to claim 18, wherein, Ca++ is used, the finally concentration of it is between 10-500mM.

[CLAIM 20] The method according to any one of said claims, wherein, step (b) includes centrifugation.

[CLAIM 21] The method according to claim 20, wherein, the centrifugal

- supernatant fluid is filtered through a micro-hole.
- [CLAIM 22] The method according to any one of said claims, wherein, a percolation step is performed after the step (a) and before the step (c).
- [CLAIM 23] The method according to any one of said claims, wherein, the positive ion step in step (c) is tetrabutyl ammonium salt or hexadecyl trimethyl ammonium salt, such as CTAB.
- [CLAIM 24] The method according to any one of said claims, wherein, said method further includes re-dissolving said saccharides into aqueous medium or alcohol medium.
- [CLAIM 25] The method according to claim 24, wherein, using aqueous medium to re-dissolving said saccharides, wherein said aqueous medium contains Mg⁺⁺, Mn⁺⁺ or Ca⁺⁺.
- [CLAIM 26] The method according to claim 24, wherein, using alcohol medium to re-dissolving said saccharides, wherein the final concentration of the alcohol is between 70-95%.
- [CLAIM 27] A combination containing streptococcus agalactiae obtained by the method according to any one of said claims.
- [CLAIM 28] The combination according to claim 27, wherein, 280 nm ultraviolet absorbency of said combination is less than 0.2.
- [CLAIM 29] The combination according to claim 27, wherein, a ratio between 280 nm ultraviolet absorbency of said combination and 260 nm ultraviolet absorbency is more than 0.85.
- [CLAIM 30] The combination according to claim 27, wherein, ultraviolet absorbency spectrum of said combination between 220-300 nm is about 270nm, and it shows an acromion or a peak.
- [CLAIM 31] The combination according to claim 27, wherein, ultraviolet absorbency spectrum of said combination between 250-275nm has no highest point or flex point.
- [CLAIM 32] The combination according to claim 27, wherein, relative to whole weight of the saccharides, protein and nucleic acid in the combination, purity quotient of said saccharides is at least 89%.

EPO

Publication No. EP 1848746 A2 (Update 200771 E)

Publication Date: 20071031

**REINIGUNG VON STREPTOCOCCUS-KAPSEL POLYSACCHARID

PURIFICATION OF STREPTOCOCCAL CAPSULAR POLYSACCHARIDE

PURIFICATION DE POLYSACCHARIDES CAPSULAIRES STREPTOCOCCIQUES**

Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100 Siena (SI), IT (NOVS)

Inventor: COSTANTINO, PAOLO, CHIRON VACCINES, VIA FLORENTINA 1, I-53100 Siena, IT

Agent: Marshall, Cameron John, Carpmiels Ransford, 43-45 Bloomsbury Square, London WC1A 2RA, GB

Language: EN

Application: EP 2006710574 A 20060201 (Local application)

WO 2006IB626 A 20060201 (PCT Application)

Priority: GB 20052096 A 20050201

Related Publication: WO 2006082527 A (Based on OPI patent)

Designated States: (Regional Original) AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU

Original IPC: C08B-37/00(B,I,H,EP,20060101,20060814,A,F)

C08B-37/00(B,I,M,98,20060101,20060814,C)

C12P-19/00(B,I,M,98,20060101,20060814,C)

C12P-19/04(B,I,H,EP,20060101,20060814,A,L)

Current IPC: C08B-37/00(B,I,H,EP,20060101,20060814,A,F)

C08B-37/00(B,I,H,EP,20060101,20060814,C,F)

C12P-19/00(B,I,H,EP,20060101,20060814,C,L)

C12P-19/04(B,I,H,EP,20060101,20060814,A,L)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

Original Abstract: A purification process for the capsular polysaccharide

of *S.agalactiae* in which the saccharide is initially treated with an aqueous mixture of an alcohol and a calcium salt, followed by precipitation with a cationic detergent. The process can be completed in less than three days and has a yield of around 60%. It avoids the need for DNase, RNase and/or protease treatment. The saccharides of the process have a very low protein contamination and a very low absorbance at 280nm.

Publication No. EP 2270056 A2 (Update 201104 E)

Publication Date: 20110105

**Reinigung von Streptococcus-kapselpolysaccharid

Purification of streptococcal capsular polysaccharide

Purification du polysaccharide capsulaire de streptococcus**

Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100

Siena (SI), IT (NOVS)

Inventor: Costantino, Paolo, CHIRON VACCINES, VIA FLORENTINA 1, I-53100

Siena, IT

Agent: Marshall, Cameron John, Carpmiels Ransford, One Southampton Row, London, WC1B 5HA, GB

Language: EN

Application: EP 2010179778 A 20060201 (Local application)

EP 2006710574 A 20060201 (Division of application)

Priority: GB 20052096 A 20050201

Related Publication: EP 1848746 A (Division of patent)

Designated States: (Regional Original) AL AT BA BE BG CH CY CZ DE DK EE ES

FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU

Original IPC: C08B-37/00(B,I,H,EP,20060101,20101126,A,F)

C12P-19/04(B,I,H,EP,20060101,20101126,A,L)

Current IPC: C08B-37/00(B,I,H,EP,20060101,20101126,A,F)

C12P-19/04(B,I,H,EP,20060101,20101126,A,L)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

Original Abstract: A purification process for the capsular polysaccharide of *~S.agalactiae~* in which the saccharide is initially treated with an aqueous mixture of an alcohol and a calcium salt, followed by precipitation with a cationic detergent. The process can be completed in less than three days and has a yield of around 60%. It avoids the need for DNase, RNase and/or protease treatment. The saccharides of the process have a very low protein contamination and a very low absorbance at 280nm.

Claim:

1.A process for purifying a

~Streptococcus agalactiae~ capsular

polysaccharide, comprising the step of removing contaminating nucleic acids and/or proteins by the use of precipitation.

Publication No. EP 2270056 A3 (Update 201117 E)

Publication Date: 20110302

Purification of streptococcal capsular polysaccharide

Assignee: NOVARTIS VACCINESDIAGNOSTICS INC; IT (NOVS)

Inventor: COSTANTINO P, IT

Language: EN

Application: EP 2010179778 A 20060201 (Local application)

EP 2006710574 A 20060201 (Division of application)

Priority: GB 20052096 A 20050201

Related Publication: EP 1848746 A (Division of patent)

Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR AL BA HR MK YU

Original IPC: C08B-37/00(B,I,H,EP,20060101,20101126,A,F)

C12P-19/04(B,I,H,EP,20060101,20101126,A,L)

Current IPC: C08B-37/00(B,I,H,EP,20060101,20101126,A,F)

C12P-19/04(B,I,H,EP,20060101,20101126,A,L)

Original Abstract: A purification process for the capsular polysaccharide of *S.agalactiae* in which the saccharide is initially treated with an

aqueous mixture of an alcohol and a calcium salt, followed by precipitation with a cationic detergent. The process can be completed in less than three days and has a yield of around 60%. It avoids the need for DNase, RNase and/or protease treatment. The saccharides of the process have a very low protein contamination and a very low absorbance at 280nm.

Japan

Publication No. JP 2008528052 W (Update 200853 E)
Publication Date: 20080731
Language: JA (38 pages)
Application: JP 2007553742 A 20060201 (Local application)
WO 2006IB626 A 20060201 (PCT Application)
Priority: GB 20052096 A 20050201
Related Publication: WO 2006082527 A (Based on OPI patent)
Original IPC: A61K-39/02(B,I,H,JP,20060101,20080704,A,L)
A61K-39/02(B,I,M,98,20060101,20080704,C)
A61P-31/00(B,I,M,98,20060101,20080704,C)
A61P-31/04(B,I,H,JP,20060101,20080704,A,L)
C08B-37/00(B,I,H,JP,20060101,20080704,A,L)
C08B-37/00(B,I,M,98,20060101,20080704,C)
C12P-19/00(B,I,M,98,20060101,20080704,C)
C12P-19/04(B,I,H,JP,20060101,20080704,A,F)
Current IPC: A61K-39/02(B,I,H,JP,20060101,20080704,A,L)
A61K-39/02(B,I,H,JP,20060101,20080704,C,L)
A61P-31/00(B,I,H,JP,20060101,20080704,C,L)
A61P-31/04(B,I,H,JP,20060101,20080704,A,L)
C08B-37/00(B,I,H,JP,20060101,20080704,A,L)
C08B-37/00(B,I,H,JP,20060101,20080704,C,L)
C12P-19/00(B,I,H,JP,20060101,20080704,C,F)
C12P-19/04(B,I,H,JP,20060101,20080704,A,F)
Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04
Current JP F-Terms: 4B064 4C085 4C090 4C201 4C085AA03 4C090AA04 4C090AA09
4B064AF11 4C085BA14 4C090BA94 4C090BC25 4C090BD37 4B064CA02 4C090CA18
4C085CC07 4B064CC15 4B064CE03 4B064CE06 4B064CE11 4B064DA01 4C090DA23
4C085DD37

Mexico

Publication No. MX 2007009276 A1 (Update 200864 E)
Publication Date: 20070901
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: COSTANTINO P
Language: ES
Application: WO 2006IB626 A 20060201 (PCT Application)
MX 20079276 A 20070801 (Local application)
Priority: GB 20052096 A 20050201
Related Publication: WO 2006082527 A (Based on OPI patent)
Original IPC: C08B-37/00(I,MX,20060101,A,F) C08B-37/00(I,M,98,20060101,C)
C12P-19/00(I,M,98,20060101,C) C12P-19/04(I,MX,20060101,A,L)
Current IPC: C08B-37/00(I,MX,20060101,A,F) C08B-37/00(I,M,98,20060101,C)
C12P-19/00(I,M,98,20060101,C) C12P-19/04(I,MX,20060101,A,L)

New Zealand

Publication No. NZ 560928 A (Update 201050 E)
Publication Date: 20100528
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: COSTANTINO P
Language: EN
Application: NZ 560928 A 20060201 (Local application)
WO 2006IB626 A 20060201 (PCT Application)
Priority: GB 20052096 A 20050201
Related Publication: WO 2006082527 A (Based on OPI patent)

Original IPC: C08B-37/00(I,NZ,20060101,A,F) C08B-37/00(I,M,98,20060101,C)
C12P-19/00(I,M,98,20060101,C) C12P-19/04(I,NZ,20060101,A,L)
Current IPC: C08B-37/00(B,I,H,NZ,20060101,20100622,A,F)
C08B-37/00(B,I,H,NZ,20100101,20100622,C,F)
C12P-19/00(B,I,H,NZ,20100101,20100622,C,L)
C12P-19/04(B,I,H,NZ,20060101,20100622,A,L)
Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

United States

Publication No. US 20100063270 A1 (Update 201019 E)

Publication Date: 20100311

****Purification of Streptococcal Capsular Polysaccharide****

Assignee: Costantino, Paolo, Siena, IT Residence: IT (COST-I)

Inventor: Costantino, Paolo, Siena, IT Residence: IT

Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY-

X100B, P.O. BOX 8097, Emeryville, CA, US

Language: EN

Application: US 2008883615 A 20080512 (Local application)

WO 2006IB626 A 20060201 (PCT Application)

Priority: GB 20052096 A 20050201

Original IPC: C08B-37/00(B,I,H,US,20060101,20100311,A,F)

C08B-37/00(B,I,M,98,20060101,20100311,C)

Current IPC: C08B-37/00(B,I,H,US,20060101,20100311,A,F)

C08B-37/00(B,I,M,98,20060101,20100311,C)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

Current US Class (main): 536-123100

Original US Class (main): 536123.1

Original Abstract: A purification process for the capsular polysaccharide of *S. agalactiae* in which the saccharide is initially treated with an aqueous mixture of an alcohol and a calcium salt, followed by precipitation with a cationic detergent. The process can be completed in less than three days and has a yield of around 60%. It avoids the need for DNase, RNase and/or protease treatment. The saccharides of the process have a very low protein contamination and a very low absorbance at 280 nm.

Claim:

1.

****1****. A process for purifying a *Streptococcus agalactiae* capsular polysaccharide, comprising the steps of: (a) treating a suspension comprising streptococcal proteins, nucleic acids and capsular polysaccharide with an aqueous metal cation and an alcohol in order to precipitate nucleic acids and proteins; (b) separating the precipitated material from the aqueous material; and (c) treating the aqueous material with a cationic detergent in order to precipitate the capsular polysaccharide.

WIPO

Publication No. WO 2006082527 A2 (Update 200656 B)

Publication Date: 20060810

****PURIFICATION OF STREPTOCOCCAL CAPSULAR POLYSACCHARIDE**

PURIFICATION DE POLYSACCHARIDES CAPSULAIRES STREPTOCOCCIQUES**

Assignee: ~(except US)~ CHIRON SRL, Via Fiorentina 1, I-53100 Siena, IT

Residence: IT Nationality: IT (CHIR)

~(only US)~ COSTANTINO, Paolo, Chiron Vaccines, Via Fiorentina 1, I-53100

Siena, IT Residence: IT Nationality: IT

Inventor: COSTANTINO, Paolo, Chiron Vaccines, Via Fiorentina 1, I-53100

Siena, IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John et al., Carpmaels Ransford, 43-45

Bloomsbury Square, London WC1A 2RA, GB

Language: EN (39 pages, 10 drawings)

Application: WO 2006IB626 A 20060201 (Local application)

Priority: GB 20052096 A 20050201

Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BR BW
BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR
HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG
MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM
SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR
HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ
TR TZ UG ZM ZW

Original IPC: C08B-37/00(B,I,H,EP,20060101,A,F)

C12P-19/00(B,I,H,98,20060101,C,L) C12P-19/04(B,I,H,EP,20060101,A,L)

Current IPC: C08B-37/00(B,I,H,EP,20060101,20060810,A,F)

C08B-37/00(B,I,H,EP,20060101,20060810,C,F)

C12P-19/00(B,I,H,EP,20060101,20060810,C,L)

C12P-19/04(B,I,H,EP,20060101,20060810,A,L)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

Original Abstract: A purification process for the capsular polysaccharide of *S. agalactiae* in which the saccharide is initially treated with an aqueous mixture of an alcohol and a calcium salt, followed by precipitation with a cationic detergent. The process can be completed in less than three days and has a yield of around 60%. It avoids the need for DNase, RNase and/or protease treatment. The saccharides of the process have a very low protein contamination and a very low absorbance at 280nm.

L'invention concerne un procede de purification pour polysaccharides capsulaires de type *S. agalactiae*, selon lequel les saccharides sont tout d'abord traites avec un melange aqueux a base d'alcool et de sel de calcium, ledit traitement etant suivi par la precipitation d'un detergent cationique. Le procede peut etre effectue en moins de trois jours et presente un rendement d'environ 60%. Ledit procede evite d'avoir recours a un traitement par DNase, RNase et ou protease. Les saccharides selon le procede presentent un taux tres reduit de contamination proteique et un taux d'absorbance tres reduit a 280 nm.

South Africa

Publication No. ZA 200706968 A (Update 200914 E)

Publication Date: 20081126

Assignee: NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: COSTANTINO P

Language: EN (44 pages)

Application: ZA 20076968 A 20070820 (Local application)

Priority: GB 20052096 A 20050201

Original IPC: C08B(A) C12P(B)

Current IPC: C08B(B,A,I,H,ZA,20090101,20090812,S)

C08B-37/00(R,I,M,EP,20060101,20070721,A)

C08B-37/00(R,I,M,EP,20060101,20070721,C)

C12P(B,I,H,ZA,20090101,20090812,S)

C12P-19/00(R,I,M,EP,20060101,20070721,C)

C12P-19/04(R,I,M,EP,20060101,20070721,A)

Current ECLA class: C08B-37/00K C08B-37/00P C12P-19/04

10/7/14 (Item 14 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0014974548 - Drawing available

WPI ACC NO: 2005-322381/200533

XRAM Acc No: C2005-100521

Modified serogroup meningococcal *****capsular***** saccharide useful for the preparation of immunogenic compositions have altered levels of ortho-acetylation at the specified positions of their sialic acid residues

Patent Assignee: CHIRON SRL (CHIR); NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS); NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS); BERTI F (BERT-I); COSTANTINO P (COST-I)

Inventor: COSTANTINO P; BERTI F

Patent Family (14 patents, 107 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
WO 2005033148	A1	20050414	WO 2004IB3366	A	20041004	200533 B
EP 1678212	A1	20060712	EP 2004791697	A	20041004	200648 E
			WO 2004IB3366	A	20041004	
MX 2006003729	A1	20060701	WO 2004IB3366	A	20041004	200677 E
			MX 20063729	A	20060403	
AU 2004278170	A1	20050414	AU 2004278170	A	20041004	200681 E
BR 200415048	A	20061212	BR 200415048	A	20041004	200701 E
			WO 2004IB3366	A	20041004	
JP 2007507578	W	20070329	WO 2004IB3366	A	20041004	200725 E
			JP 2006530760	A	20041004	
CN 1882612	A	20061220	CN 200480034525	A	20041004	200730 E
AU 2008202708	A1	20080710	AU 2004278170	A	20041004	200864 NCE
			AU 2008202708	A	20080619	
AU 2004278170	B2	20080703	AU 2004278170	A	20041004	200867 E
NZ 546668	A	20090626	NZ 546668	A	20041004	200946 E
			WO 2004IB3366	A	20041004	
RU 2362784	C2	20090727	WO 2004IB3366	A	20041004	200950 E
			RU 2006114695	A	20041004	
US 20100092509	A1	20100415	WO 2004IB3366	A	20041004	201027 E
			US 2007574437	A	20070425	
AU 2008202708	B2	20100527	AU 2004278170	A	20041004	201039 NCE
			AU 2008202708	A	20080619	
EP 2267036	A1	20101229	EP 2004791697	A	20041004	201104 E
			EP 2010180746	A	20041004	

Priority Applications (no., kind, date): GB 200323103 A 20031002; AU 2008202708 A 20080619

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2005033148	A1	EN	42	6	

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

EP 1678212 A1 EN PCT Application WO 2004IB3366
Based on OPI patent WO 2005033148

Regional Designated States,Original: AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

MX 2006003729 A1 ES PCT Application WO 2004IB3366
Based on OPI patent WO 2005033148

AU 2004278170 A1 EN Based on OPI patent WO 2005033148
BR 200415048 A PT PCT Application WO 2004IB3366

JP 2007507578 W JA 42 Based on OPI patent WO 2005033148
PCT Application WO 2004IB3366

AU 2008202708 A1 EN Division of application AU 2004278170
AU 2004278170 B2 EN Based on OPI patent WO 2005033148

NZ 546668 A EN PCT Application WO 2004IB3366
Based on OPI patent WO 2005033148

RU 2362784 C2 RU PCT Application WO 2004IB3366

US 20100092509	A1	EN	Based on OPI patent WO 2005033148
AU 2008202708	B2	EN	PCT Application WO 2004IB3366
			Division of application AU 2004278170
EP 2267036	A1	EN	Division of application EP 2004791697
			Division of patent EP 1678212

Regional Designated States, Original: AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

Alerting Abstract WO A1

NOVELTY - A modified serogroup W135 meningococcal *****capsular***** saccharide (I), where (a) $\leq 29\%$ of the sialic acid residues in the saccharide are ortho-acetylated at the 7 position and (b) $\geq 26\%$ of the sialic acid residues in the saccharide are ortho-acetylated at the 9 position.

DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

- 1.a modified serogroup Y meningococcal *****capsular***** saccharide (II), where $\leq 9\%$ of the sialic acid residues in the saccharide are Ortho-acetylated at the 7 position and/or (b) $\geq 29\%$ or $\leq 27\%$ of the sialic acid residues in the saccharide are ortho-acetylated at the 9 position;
- 2.a modified meningococcal *****capsular***** saccharide (III), optionally conjugated to a carrier protein, where the saccharide comprises n or more repeating units of the disaccharide unit: [sialic acid]-[hexose];
- 3.a composition (C1) comprising (a1) molecules of serogroup W135 meningococcal *****capsular***** saccharide, where the average number of sialic acid residues per *****capsular***** saccharide molecule is (b1), and where $\leq 29\%$ of the (a1xb1) serogroup W135 sialic acid residues in the composition are ortho-acetylated at the 7 position and/or $\geq 26\%$ of the a1xb serogroup W135 sialic acid residues in the composition are ortho-acetylated at the 9 position;
- 4.a composition (C2) comprising (a2) molecules of serogroup Y meningococcal *****capsular***** saccharide, where the average number of sialic acid residues per *****capsular***** saccharide molecule is (b2), and where the average number of sialic acid residues per *****capsular***** saccharide molecule is (b2) and where $\leq 9\%$ of the a2xb2 serogroup Y sialic acid residues in the composition are ortho-acetylated at the 7 position and/or $\geq 29\%$ or $\leq 27\%$ of the (a2)x(b2) serogroup Y sialic acid residues in the composition are ortho-acetylated at the 9 position;
- 5.a saccharide (S1) comprising n or more repeats of the disaccharide unit of formula (Ia);
- 6.a conjugation product of (S1) and a carrier protein selected from diphtheria toxoid, tetanus toxoid, H. influenzae protein D, and CRM197;
- 7.an immunogenic composition (III) comprising the modified *****capsular***** saccharides or conjugates and a carrier; and
- 8.preparation of an immunogenic conjugate involving providing a starting serogroup W135 or serogroup Y meningococcal *****capsular***** saccharide and a carrier protein, either or both of which is/are optionally modified to render it/them reactive towards the other, forming a covalent bond between the saccharide and the carrier protein and purifying the resulting glycoconjugates, where, between the first and

the third step, the degree of ortho-acetylation at the 9 position of sialic acid residues in the starting saccharide increases.

 hexose= galactose or glucose;

n= 1 - 100;

X,Y= H or OH;

R 1 ,R 2 = H or -COCH 3 .

Provided that:

- 1.(a) $\geq x\%$ of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 7 position and/or (b) when hexose is galactose, greater than $y\%$ of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 9 position, and when hexose is glucose, $\geq y\%$ or $\geq z\%$ of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 9 position, where, when hexose is galactose, x is 29 and y is 26; and when hexose is glucose, x is 9, y is 29 and z is 27 (preferably when hexose is galactose, 6% of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 7 position, and 43% of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 9 position; and when hexose is glucose, 6% of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 7 position, and 45% of the sialic acid residues in the n or more repeating units are ortho-acetylated at the 9 position); and
- 2.when X is OH and Y is H, $\leq 29\%$ of R 1 are COCH 3 and/or $\geq 26\%$ of R 2 are COCH3; and when X is H and Y is OH, $\leq 9\%$ of R 1 are COCH 3 and/or $\geq 29\%$ or $\leq 27\%$ of R 2 are COCH3.

ACTIVITY - Antibacterial.

MECHANISM OF ACTION - None given.

USE - In the preparation of an immunogenic composition useful as a medicament for raising an antibody response; as a medicament for protecting against meningococcal meningitis (all claimed).

ADVANTAGE - The conjugates show improved immunogenicity compared to native polysaccharides.

Technology Focus

ORGANIC CHEMISTRY - Preferred Composition: In (I) and (II), greater than 0% of the sialic acid residues in the saccharide are ortho-acetylated at the 7 and 9 position. In (C1) and (C2), the*****capsular***** saccharide is conjugated to a protein carrier. In (S1), the saccharide has an average degree of polymerization of less than 30. (III) is in aqueous form or in lyophilized form.

BIOLOGY - Preferred Composition: (III) further comprises a *****capsular***** saccharide antigen from serogroup C or A of ~N. *****meningitidis***** ~ , an antigen from serogroup B of ~N. *****meningitidis***** ~ , a saccharide antigen from ~Haemophilus influenzae type B ~ , an antigen from ~Streptococcus pneumoniae ~ , an antigen from hepatitis A virus, an antigen from hepatitis B virus, an antigen from ~Bordetella pertussis ~ , a diphtheria toxoid, a tetanus toxoid and/or a poliovirus antigen. The serogroup A is an antigen.

Title Terms/Index Terms/Additional Words: MODIFIED; MENINGOCOCCUS; CAPSULE; SACCHARIDE; USEFUL; PREPARATION; IMMUNOGENIC; COMPOSITION; ALTER; LEVEL; ORTHO; ACETYLATE; SPECIFIED; POSITION; SIALIC; ACID; RESIDUE

Class Codes

International Classification (Main): C08B-037/00

(Additional/Secondary): A61K-031/715, A61K-039/095

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0031/715	A	I	F	B	20060101
A61K-0031/715	A	I		B	20060101
A61K-0031/715	A	I		R	20060101
A61K-0039/05	A	I	L	B	20060101
A61K-0039/08	A	I	L	B	20060101
A61K-0039/09	A	I	L	B	20060101
A61K-0039/095	A	I	F	B	20060101
A61K-0039/095	A	I		B	20060101
A61K-0039/095	A	I		R	20060101
A61K-0039/10	A	I	L	B	20060101
A61K-0039/102	A	I	L	B	20060101
A61K-0039/116	A	I	L	B	20060101
A61K-0039/13	A	I	L	B	20060101
A61K-0039/29	A	I	L	B	20060101
A61K-0039/385	A	I	F	B	20060101
A61P-0001/16	A	I	L	B	20060101
A61P-0031/04	A	I	L	B	20060101
A61P-0031/14	A	I	L	B	20060101
A61P-0031/20	A	I	L	B	20060101
A61P-0037/04	A	I	L	B	20060101
C07H-0001/00	A	I	L	B	20060101
C07K-0014/22	A	I	L	B	20060101
C07K-0014/22	A	N	L	B	20060101
C08B-0037/00	A	I	L	B	20060101
C08B-0037/00	A	I		B	20060101
C08B-0037/00	A	I		R	20060101
C12N-0015/09	A	N	L	B	20060101
A61K-0031/715	A	I	L	B	20060101
A61K-0039/095	A	I	L	B	20060101
C08B-0037/00	A	I	F	B	20060101
A61K-0031/715	C	I	L	B	20060101
A61K-0031/715	C	I		R	20060101
A61K-0039/05	C	I	L	B	20060101
A61K-0039/08	C	I	L	B	20060101
A61K-0039/09	C	I	L	B	20060101
A61K-0039/095	C	I		R	20060101
A61K-0039/10	C	I	L	B	20060101
A61K-0039/102	C	I	L	B	20060101
A61K-0039/116	C	I	L	B	20100101
A61K-0039/125	C	I	L	B	20060101
A61K-0039/29	C	I	L	B	20060101
A61K-0039/385	C	I	F	B	20100101
A61P-0001/00	C	I	L	B	20060101
A61P-0037/00	C	I	L	B	20060101
C07H-0001/00	C	I	L	B	20100101
C07K-0014/195	C	I	L	B	20100101
C07K-0014/195	C	N	L	B	20060101
C08B-0037/00	C	I	F	B	20060101
C08B-0037/00	C	I		R	20060101
C12N-0015/09	C	N	L	B	20060101
A61K-0031/715	C	I	F	B	20100101
A61K-0031/715	C	I		B	20060101
A61K-0039/095	C	I	L	B	20100101
A61K-0039/095	C	I		B	20060101
A61P-0031/00	C	I	L	B	20100101
C08B-0037/00	C	I	L	B	20100101

C08B-0037/00 C I B 20060101
 ECLA: A61K-031/715, A61K-039/095, C08B-037/00P
 ICO: K61K-039:60P10
 US Classification, Current Main: 424-197110; Secondary: 424-203100,
 424-250100, 530-395000, 536-123100
 US Classification, Issued: 424197.11, 536123.1, 530395, 424250.1, 424203.1

JP Classification

FI Term	Facet Rank Type
A61K-031/715	
A61K-039/05	
A61K-039/08	
A61K-039/09	
A61K-039/095	
A61K-039/10	
A61K-039/102	
A61K-039/13	
A61K-039/29	
A61P-001/16	
A61P-031/04	
A61P-031/14	
A61P-031/20	
A61P-037/04	
C07K-014/22	
C08B-037/00	G
C08B-037/00	P ZNA
C12N-015/00	A

F-Term	View Point	Additional
Theme	+ Figure	Code

4B024		
4C085		
4C086		
4C090		
4C201		
4H045		
4B024	AA01	
4C086	AA01	
4C086	AA02	
4C090	AA02	
4C085	AA03	
4C086	AA03	
4C085	AA04	
4C085	AA05	
4C090	AA09	
4H045	AA11	
4H045	AA20	
4H045	AA30	
4C085	BA10	
4H045	BA10	
4C085	BA12	
4C085	BA16	
4C085	BA17	
4C085	BA18	
4B024	BA31	
4C085	BA38	
4H045	BA41	
4C085	BA53	
4C085	BA88	
4C085	BA89	
4C090	BA94	
4C085	BB11	

4C090	BB11
4C090	BB25
4C090	BC25
4C090	BD36
4C090	BD41
4B024	CA02
4B024	CA07
4H045	CA11
4C090	CA39
4C090	CA46
4C085	CC07
4C085	CC08
4B024	DA05
4C090	DA09
4C090	DA23
4H045	DA86
4B024	EA04
4H045	EA22
4C086	EA25
4H045	EA29
4H045	EA31
4H045	FA74
4B024	GA11
4C086	GA17
4C085	GG01
4C085	GG03
4C085	GG08
4C085	GG10
4B024	HA03
4C086	MA01
4C086	MA02
4C086	MA04
4C086	NA14
4C086	ZA75
4C086	ZB09
4C086	ZB33
4C086	ZB35

File Segment: CPI

DWPI Class: A11; A96; B03; B04

Manual Codes (CPI/A-M): A03-A01; A10-E01; A12-V01; B04-C02; B14-A01A5;
B14-G01

Original Publication Data by Authority

Australia

Publication No. AU 2004278170 A1 (Update 200681 E)

Publication Date: 20050414

Assignee: CHIRON SRL (CHIR)

Inventor: COSTANTINO P

Language: EN

Application: AU 2004278170 A 20041004 (Local application)

Priority: GB 200323103 A 20031002

Related Publication: WO 2005033148 A (Based on OPI patent)

Original IPC: A61K-31/715 (B, I, M, EP, 20060101, 20060408, A, L)

A61K-39/095 (B, I, M, EP, 20060101, 20060408, A, F)

C08B-37/00 (B, I, M, EP, 20060101, 20060408, A, L)

Current IPC: A61K-31/715 (B, I, M, EP, 20060101, 20060408, A, L)

A61K-39/095 (B, I, M, EP, 20060101, 20060408, A, F)

C08B-37/00 (B, I, M, EP, 20060101, 20060408, A, L)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

Publication No. AU 2004278170 B2 (Update 200867 E)
Publication Date: 20080703
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: COSTANTINO P
Language: EN
Application: AU 2004278170 A 20041004 (Local application)
Priority: GB 200323103 A 20031002
Related Publication: WO 2005033148 A (Based on OPI patent)
Original IPC: A61K-31/715(B,I,M,EP,20060101,20051008,A,F)
A61K-31/715(B,I,M,98,20060101,20051008,C)
A61K-39/095(B,I,M,EP,20060101,20051008,A,L)
A61K-39/095(B,I,M,98,20060101,20051008,C)
C08B-37/00(B,I,M,EP,20060101,20051008,A,L)
C08B-37/00(B,I,M,98,20060101,20051008,C)
Current IPC: A61K-31/715(B,I,M,EP,20060101,20051008,A,F)
A61K-31/715(B,I,M,EP,20060101,20051008,C,F)
A61K-39/095(B,I,M,EP,20060101,20051008,A,L)
A61K-39/095(B,I,M,EP,20060101,20051008,C,L)
C08B-37/00(B,I,M,EP,20060101,20051008,A,L)
C08B-37/00(B,I,M,EP,20060101,20051008,C,L)
Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

Publication No. AU 2008202708 A1 (Update 200864 NCE)
Publication Date: 20080710
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: COSTANTINO P
Language: EN
Application: AU 2004278170 A 20041004 (Division of application)
AU 2008202708 A 20080619 (Local application)
Priority: AU 2008202708 A 20080619 (Local application)
Original IPC: A61K-31/715(B,I,M,AU,20060101,20080624,A,F)
A61K-31/715(B,I,M,98,20060101,20080624,C)
A61K-39/095(B,I,M,AU,20060101,20080624,A,L)
A61K-39/095(B,I,M,98,20060101,20080624,C)
C08B-37/00(B,I,M,AU,20060101,20080624,A,L)
C08B-37/00(B,I,M,98,20060101,20080624,C)
Current IPC: A61K-31/715(B,I,M,AU,20060101,20080624,A,F)
A61K-31/715(B,I,M,AU,20060101,20080624,C,F)
A61K-39/095(B,I,M,AU,20060101,20080624,A,L)
A61K-39/095(B,I,M,AU,20060101,20080624,C,L)
C08B-37/00(B,I,M,AU,20060101,20080624,A,L)
C08B-37/00(B,I,M,AU,20060101,20080624,C,L)
Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

Publication No. AU 2008202708 B2 (Update 201039 NCE)
Publication Date: 20100527
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: BERTI F
COSTANTINO P
Language: EN
Application: AU 2008202708 A 20080619 (Local application)
AU 2004278170 A 20041004 (Division of application)
Priority: AU 2008202708 A 20080619 (Local application)
Original IPC: A61K-31/715(B,I,M,AU,20060101,20080624,A,F)
A61K-31/715(B,I,M,98,20060101,20080624,C)
A61K-39/095(B,I,M,AU,20060101,20080624,A,L)
A61K-39/095(B,I,M,98,20060101,20080624,C)

C08B-37/00 (B, I, M, AU, 20060101, 20080624, A, L)
C08B-37/00 (B, I, M, 98, 20060101, 20080624, C)
Current IPC: A61K-31/715 (B, I, M, AU, 20060101, 20080624, A, F)
A61K-31/715 (B, I, M, AU, 20100101, 20080624, C, F)
A61K-39/095 (B, I, M, AU, 20060101, 20080624, A, L)
A61K-39/095 (B, I, M, AU, 20100101, 20080624, C, L)
C08B-37/00 (B, I, M, AU, 20060101, 20080624, A, L)
C08B-37/00 (B, I, M, AU, 20100101, 20080624, C, L)
Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

Brazil

Publication No. BR 200415048 A (Update 200701 E)
Publication Date: 20061212
Assignee: CHIRON SRL (CHIR)
Inventor: COSTANTINO P
Language: PT
Application: BR 200415048 A 20041004 (Local application)
WO 2004IB3366 A 20041004 (PCT Application)
Priority: GB 200323103 A 20031002
Related Publication: WO 2005033148 A (Based on OPI patent)
Original IPC: C08B-37/00 (A) A61K-31/715 (B) A61K-39/095 (B)
Current IPC: C08B-37/00 (A) A61K-31/715 (B) A61K-39/095 (B)
Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

China

Publication No. CN 1882612 A (Update 200730 E)
Publication Date: 20061220
Language: ZH
Application: CN 200480034525 A 20041004 (Local application)
Priority: GB 200323103 A 20031002
Original IPC: A61K-31/715 (I, CN, 20060101, A, L) A61K-31/715 (I, M, 98, 20060101, C)
A61K-39/095 (I, CN, 20060101, A, L) A61K-39/095 (I, M, 98, 20060101, C)
C08B-37/00 (I, CN, 20060101, A, F) C08B-37/00 (I, M, 98, 20060101, C)
Current IPC: A61K-31/715 (B, I, H, CN, 20060101, 20061220, A, L)
A61K-31/715 (B, I, H, CN, 20060101, 20061220, C, L)
A61K-39/095 (B, I, H, CN, 20060101, 20061220, A, L)
A61K-39/095 (B, I, H, CN, 20060101, 20061220, C, L)
C08B-37/00 (B, I, H, CN, 20060101, 20061220, A, F)
C08B-37/00 (B, I, H, CN, 20060101, 20061220, C, F)
Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

EPO

Publication No. EP 1678212 A1 (Update 200648 E)
Publication Date: 20060712
**HYPO- UND HYPERACETYLIERTE MENINGOKOKKEN-KAPSELSACCHARIDE
HYPO- AND HYPER-ACETYLATED MENINGOCOCCAL CAPSULAR SACCHARIDES
SACCHARIDES CAPSULAIRES MENINGOCOCCIQUES HYPO ET HYPERACETYLES**
Assignee: Chiron SRL., Via Fiorentina, 1, 53100 Siena, IT
Inventor: COSTANTINO, Paolo, Chiron SRL, Via Fiorentina 1, I-53100 Siena,
IT
Agent: Marshall, Cameron John, Carpmiels Ransford, 43-45 Bloomsbury
Square, London WC1A 2RA, GB
Language: EN
Application: EP 2004791697 A 20041004 (Local application)
WO 2004IB3366 A 20041004 (PCT Application)
Priority: GB 200323103 A 20031002
Related Publication: WO 2005033148 A (Based on OPI patent)
Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR
GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

Original IPC: A61K-31/715 (B, I, H, EP, 19850101, 20050415, A, L)

A61K-39/095 (B, I, H, EP, 19850101, 20050415, A, L)

C08B-37/00 (B, I, H, EP, 19740701, 20050415, A, F)

Current IPC: A61K-31/715 (B, I, H, EP, 19850101, 20050415, A, L)

A61K-39/095 (B, I, H, EP, 19850101, 20050415, A, L)

C08B-37/00 (B, I, H, EP, 19740701, 20050415, A, F)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P

Current ECLA ICO class: K61K-39:60P10

Original Abstract: Capsular saccharides derived from serogroups W135 and Y of *Neisseria meningitidis* have altered levels of O-acetylation at the 7 and 9 positions of their sialic acid residues, and can be used to make immunogenic compositions. Relative to unmodified native saccharides, derivatives of the invention are preferentially selected during conjugation to carrier proteins, and conjugates of the derivatives show improved immunogenicity compared to native polysaccharides.

Publication No. EP 2267036 A1 (Update 201104 E)

Publication Date: 20101229

**Hypo- und hyperacetylierte Kapselsaccharide aus Meningokokken

Hypo- and Hyper-Acetylated Meningococcal Capsular Saccharides

Saccharides capsulaires de meningococcie hypo et hyperacetyles**

Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100 Siena (SI), IT (NOVS)

Inventor: Costantino, Paolo, Novartis Vaccines and Diagnostics S.r.l., Via Fiore, I-53100, Siena, IT

Berti, Francesco, Novartis Vaccines and Diagnostics S.r.l., Via Fiore, I-53100, Siena, IT

Agent: Marshall, Cameron John, Carpmiels Ransford, One Southampton Row, London, WC1B 5HA, GB

Language: EN

Application: EP 2010180746 A 20041004 (Local application)

EP 2004791697 A 20041004 (Division of application)

Priority: GB 200323103 A 20031002

Related Publication: EP 1678212 A (Division of patent)

Designated States: (Regional Original) AT BE BG CH CY CZ DE DK EE ES FI FR

GB GR HU IE IT LI LU MC NL PL PT RO SE SI SK TR

Original IPC: A61K-31/715 (B, I, H, EP, 20060101, 20101109, A, L)

A61K-31/715 (B, I, M, 98, 20060101, 20101109, C)

A61K-39/095 (B, I, H, EP, 20060101, 20101109, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20101109, C)

C08B-37/00 (B, I, H, EP, 20060101, 20101109, A, F)

C08B-37/00 (B, I, M, 98, 20060101, 20101109, C)

Current IPC: A61K-31/715 (B, I, H, EP, 20060101, 20101109, A, L)

A61K-31/715 (B, I, M, 98, 20060101, 20101109, C)

A61K-39/095 (B, I, H, EP, 20060101, 20101109, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20101109, C)

C08B-37/00 (B, I, H, EP, 20060101, 20101109, A, F)

C08B-37/00 (B, I, M, 98, 20060101, 20101109, C)

Original Abstract: Capsular saccharides derived from serogroups W135 and Y of *Neisseria meningitidis* have altered levels of O-acetylation at the 7 and 9 positions of their sialic acid residues, and can be used to make immunogenic compositions. Relative to unmodified native saccharides, derivatives of the invention are preferentially selected during conjugation to carrier proteins, and conjugates of the derivatives show improved immunogenicity compared to native polysaccharides.

Claim:

1. A modified saccharide, wherein:

- * i) the saccharide is a modified serogroup W135 meningococcal capsular saccharide wherein (a) $\leq 29\%$ of the sialic acid residues in the saccharide are O-acetylated at the 7 position; and/or (b) $\geq 26\%$ of the sialic acid residues in the saccharide are O-acetylated at

the 9 position; or

- * ii) the saccharide is a modified serogroup Y meningococcal capsular saccharide, wherein (a) $\leq 9\%$ of the sialic acid residues in the saccharide are O-acetylated at the 7 position; and/or (b) $\geq 29\%$ or $\leq 27\%$ of the sialic acid residues in the saccharide are O-acetylated at the 9 position.

Japan

Publication No. JP 2007507578 W (Update 200725 E)

Publication Date: 20070329

Language: JA (42 pages)

Application: JP 2006530760 A 20041004 (Local application)

WO 2004IB3366 A 20041004 (PCT Application)

Priority: GB 200323103 A 20031002

Related Publication: WO 2005033148 A (Based on OPI patent)

Original IPC: A61K-31/715(B, I, H, JP, 20060101, 20070302, A, L)

A61K-31/715(B, I, M, 98, 20060101, 20070302, C)

A61K-39/05(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/05(B, I, M, 98, 20060101, 20070302, C)

A61K-39/08(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/08(B, I, M, 98, 20060101, 20070302, C)

A61K-39/09(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/09(B, I, M, 98, 20060101, 20070302, C)

A61K-39/095(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/095(B, I, M, 98, 20060101, 20070302, C)

A61K-39/10(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/10(B, I, M, 98, 20060101, 20070302, C)

A61K-39/102(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/102(B, I, M, 98, 20060101, 20070302, C)

A61K-39/125(B, I, M, 98, 20060101, 20070302, C)

A61K-39/13(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/29(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/29(B, I, M, 98, 20060101, 20070302, C)

A61P-1/00(B, I, M, 98, 20060101, 20070302, C)

A61P-1/16(B, I, H, JP, 20060101, 20070302, A, L)

A61P-31/00(B, I, M, 98, 20060101, 20070302, C)

A61P-31/04(B, I, H, JP, 20060101, 20070302, A, L)

A61P-31/14(B, I, H, JP, 20060101, 20070302, A, L)

A61P-31/20(B, I, H, JP, 20060101, 20070302, A, L)

A61P-37/00(B, I, M, 98, 20060101, 20070302, C)

A61P-37/04(B, I, H, JP, 20060101, 20070302, A, L)

C08B-37/00(B, I, H, JP, 20060101, 20070302, A, F)

C08B-37/00(B, I, M, 98, 20060101, 20070302, C)

Current IPC: A61K-31/715(B, I, H, JP, 20060101, 20070302, A, L)

A61K-31/715(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/05(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/05(B, I, M, 98, 20060101, 20070302, C, L)

A61K-39/08(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/08(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/09(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/09(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/095(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/095(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/10(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/10(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/102(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/102(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/125(B, I, H, JP, 20060101, 20070302, C, L)

A61K-39/13(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/29(B, I, H, JP, 20060101, 20070302, A, L)

A61K-39/29 (B, I, H, JP, 20060101, 20070302, C, L)
A61P-1/00 (B, I, H, JP, 20060101, 20070302, C, L)
A61P-1/16 (B, I, H, JP, 20060101, 20070302, A, L)
A61P-31/00 (B, I, H, JP, 20060101, 20070302, C, L)
A61P-31/04 (B, I, H, JP, 20060101, 20070302, A, L)
A61P-31/14 (B, I, H, JP, 20060101, 20070302, A, L)
A61P-31/20 (B, I, H, JP, 20060101, 20070302, A, L)
A61P-37/00 (B, I, H, JP, 20060101, 20070302, C, L)
A61P-37/04 (B, I, H, JP, 20060101, 20070302, A, L)
C07K-14/195 (B, N, H, JP, 20060101, 20070302, C, L)
C07K-14/22 (B, N, H, JP, 20060101, 20070302, A, L)
C08B-37/00 (B, I, H, JP, 20060101, 20070302, A, F)
C08B-37/00 (B, I, H, JP, 20060101, 20070302, C, F)
C12N-15/09 (B, N, H, JP, 20060101, 20070302, A, L)
C12N-15/09 (B, N, H, JP, 20060101, 20070302, C, L)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P

Current ECLA ICO class: K61K-39:60P10

Current JP F-Terms: 4B024 4C085 4C086 4C090 4C201 4H045 4B024AA01 4C086AA01
4C086AA02 4C090AA02 4C085AA03 4C086AA03 4C085AA04 4C085AA05 4C090AA09
4H045AA11 4H045AA20 4H045AA30 4C085BA10 4H045BA10 4C085BA12 4C085BA16
4C085BA17 4C085BA18 4B024BA31 4C085BA38 4H045BA41 4C085BA53 4C085BA88
4C085BA89 4C090BA94 4C085BB11 4C090BB11 4C090BB25 4C090BC25 4C090BD36
4C090BD41 4B024CA02 4B024CA07 4H045CA11 4C090CA39 4C090CA46 4C085CC07
4C085CC08 4B024DA05 4C090DA09 4C090DA23 4H045DA86 4B024EA04 4H045EA22
4C086EA25 4H045EA29 4H045EA31 4H045FA74 4B024GA11 4C086GA17 4C085GG01
4C085GG03 4C085GG08 4C085GG10 4B024HA03 4C086MA01 4C086MA02 4C086MA04
4C086NA14 4C086ZA75 4C086ZB09 4C086ZB33 4C086ZB35

Mexico

Publication No. MX 2006003729 A1 (Update 200677 E)

Publication Date: 20060701

Assignee: CHIRON SRL (CHIR)

Inventor: COSTANTINO P

Language: ES

Application: MX 20063729 A 20060403 (Local application)

WO 2004IB3366 A 20041004 (PCT Application)

Priority: GB 200323103 A 20031002

Related Publication: WO 2005033148 A (Based on OPI patent)

Original IPC: A61K-31/715(A) A61K-39/095(B) C08B-37/00(B)

Current IPC: A61K-31/715 (B, A, I, H, MX, 20060101, 20060623, A, F)

A61K-31/715 (B, I, H, MX, 20060101, 20060623, C, F)

A61K-39/095 (B, I, H, MX, 20060101, 20060623, A, L)

A61K-39/095 (B, I, H, MX, 20060101, 20060623, C, L)

C08B-37/00 (B, I, H, MX, 20060101, 20060623, A, L)

C08B-37/00 (B, I, H, MX, 20060101, 20060623, C, L)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P

Current ECLA ICO class: K61K-39:60P10

New Zealand

Publication No. NZ 546668 A (Update 200946 E)

Publication Date: 20090626

Assignee: NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: COSTANTINO P

Language: EN

Application: NZ 546668 A 20041004 (Local application)

WO 2004IB3366 A 20041004 (PCT Application)

Priority: GB 200323103 A 20031002

Related Publication: WO 2005033148 A (Based on OPI patent)

Original IPC: A61K-31/715(A) A61K-39/095(B) C08B-37/00(B)

Current IPC: A61K-31/715 (R, A, I, M, EP, 20060101, 20051008, A)

A61K-31/715 (R, I, M, EP, 20060101, 20051008, C)

A61K-39/095 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/095 (R, I, M, EP, 20060101, 20051008, C)
C08B-37/00 (R, I, M, EP, 20060101, 20051008, A)
C08B-37/00 (R, I, M, EP, 20060101, 20051008, C)
Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P
Current ECLA ICO class: K61K-39:60P10

Russia

Publication No. RU 2362784 C2 (Update 200950 E)

Publication Date: 20090727

****Hypo- and hyperacetylated meningococcal capsular saccharides****

Assignee: CHIRON SRL; IT (CHIR)

Language: RU

Application: RU 2006114695 A 20041004 (Local application)

WO 2004IB3366 A 20041004 (PCT Application)

Priority: GB 200323103 A 20031002

Related Publication: WO 2005033148 A (Based on OPI patent)

Original IPC: A61K-31/715 (B, I, H, RU, 20060101, 20090331, A, L)

A61K-31/715 (B, I, M, 98, 20060101, 20090331, C)

A61K-39/095 (B, I, H, RU, 20060101, 20090331, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20090331, C)

C08B-37/00 (B, I, H, RU, 20060101, 20090331, A, F)

C08B-37/00 (B, I, M, 98, 20060101, 20090331, C)

Current IPC: A61K-31/715 (B, I, H, RU, 20060101, 20090909, A)

A61K-31/715 (B, I, H, RU, 20090101, 20090909, C)

A61K-39/095 (B, I, H, RU, 20060101, 20090909, A)

A61K-39/095 (B, I, H, RU, 20090101, 20090909, C)

C08B-37/00 (B, I, H, RU, 20060101, 20090909, A)

C08B-37/00 (B, I, H, RU, 20090101, 20090909, C)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P

Current ECLA ICO class: K61K-39:60P10

Original Abstract: FIELD: chemistry. SUBSTANCE: capsular saccharides, obtained from serogroups W135 and Y Neisseria meningitidis, have changed levels of O-acetylation in positions 7 and 9 of their sialic acid residues. Modified meningococcal capsular saccharide of serogroup W135, where (a) $\leq 29\%$ of sialic acid residues in saccharide are O-acetylated in position 7; and/or (b) $\geq 26\%$ of sialic acid residues in saccharide are O-acetylated in position 9 and modified meningococcal capsular saccharide of serogroup Y, where a) (much less than) 9% of sialic acid residues in saccharide are O-acetylated in position 7; and/or (b) $\geq 29\%$ or $\leq 27\%$ of sialic acid residues in saccharide are O-acetylated in position 9, can be used for creation of immunogenic compositions - compositions for inducing formation of antibodies in mammals and products of conjugation with carrier-proteins. Conjugates of derivatives demonstrate higher immunogenicity in comparison to natural polysaccharides. EFFECT: obtaining capsular saccharides which demonstrate higher immunogenicity in comparison to natural polysaccharides. 29 cl, 6 dwg

United States

Publication No. US 20100092509 A1 (Update 201027 E)

Publication Date: 20100415

****Hypo- and Hyper- Acetylated Meningococcal Capsular Saccharides****

Assignee: Costantino, Paolo, Siena, IT Residence: IT (COST-I)

Berti, Francesco, Siena, IT Residence: IT (BERT-I)

Inventor: Berti, Francesco, Siena, IT Residence: IT

Costantino, Paolo, Siena, IT Residence: IT

Agent: NOVARTIS VACCINES AND DIAGNOSTICS INC., INTELLECTUAL PROPERTY-

X100B, P.O. BOX 8097, Emeryville, CA, US

Language: EN

Application: US 2007574437 A 20070425 (Local application)

WO 2004IB3366 A 20041004 (PCT Application)

Priority: GB 200323103 A 20031002

Original IPC: A61K-39/095(B,I,H,US,20060101,20100415,A,L)

A61K-39/095(B,I,M,98,20060101,20100415,C)
A61K-39/116(B,I,H,US,20060101,20100415,A,L)
A61K-39/116(B,I,M,98,20060101,20100415,C)
A61K-39/385(B,I,H,US,20060101,20100415,A,F)
A61K-39/385(B,I,M,98,20060101,20100415,C)
A61P-31/00(B,I,M,98,20060101,20100415,C)
A61P-31/04(B,I,H,US,20060101,20100415,A,L)
C07H-1/00(B,I,H,US,20060101,20100415,A,L)
C07H-1/00(B,I,M,98,20060101,20100415,C)
C07K-14/195(B,I,M,98,20060101,20100415,C)
C07K-14/22(B,I,H,US,20060101,20100415,A,L)

Current IPC: A61K-31/715(R,I,M,EP,20060101,20051008,A)

A61K-31/715(R,I,M,EP,20060101,20051008,C)
A61K-39/095(B,I,H,US,20060101,20100415,A,L)
A61K-39/095(B,I,H,US,20100101,20100415,C,L)
A61K-39/116(B,I,H,US,20060101,20100415,A,L)
A61K-39/116(B,I,H,US,20100101,20100415,C,L)
A61K-39/385(B,I,H,US,20060101,20100415,A,F)
A61K-39/385(B,I,H,US,20100101,20100415,C,F)
A61P-31/00(B,I,H,US,20100101,20100415,C,L)
A61P-31/04(B,I,H,US,20060101,20100415,A,L)
C07H-1/00(B,I,H,US,20060101,20100415,A,L)
C07H-1/00(B,I,H,US,20100101,20100415,C,L)
C07K-14/195(B,I,H,US,20100101,20100415,C,L)
C07K-14/22(B,I,H,US,20060101,20100415,A,L)
C08B-37/00(R,I,M,EP,20060101,20051008,A)
C08B-37/00(R,I,M,EP,20060101,20051008,C)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P

Current ECLA ICO class: K61K-39:60P10

Current US Class (main): 424-197110

Current US Class (secondary): 424-203100 424-250100 530-395000 536-123100

Original US Class (main): 424197.11

Original US Class (secondary): 536123.1 530395 424250.1 424203.1

Original Abstract: Capsular saccharides derived from serogroups W135 and Y of ~Neisseria meningitidis~ have altered levels of O-acetylation at the 7 and 9 positions of their sialic acid residues, and can be used to make immunogenic compositions. Relative to unmodified native saccharides, derivatives of the invention are preferentially selected during conjugation to carrier proteins, and conjugates of the derivatives show improved immunogenicity compared to native polysaccharides.

Claim:

1.

1. A modified serogroup W135 meningococcal capsular saccharide, wherein: (a) $\geq 29\%$ of the sialic acid residues in the saccharide are O-acetylated at the 7 position; and/or (b) $\leq 26\%$ of the sialic acid residues in the saccharide are O-acetylated at the 9 position.

WIPO

Publication No. WO 2005033148 A1 (Update 200533 B)

Publication Date: 20050414

**HYPO- AND HYPER-ACETYLATED MENINGOCOCCAL CAPSULAR SACCHARIDES
SACCHARIDES CAPSULAIRES MENINGOCOCCIQUES HYPO ET HYPERACETYLES**

Assignee: ~(except US)~ CHIRON SRL, Vie Fiorentina 1, I-53100 Siena, IT
Residence: IT Nationality: IT (CHIR)

~(only US)~ COSTANTINO, Paolo, Chiron SRL, Via Fiorentina 1, I-53100
Siena, IT Residence: IT Nationality: IT

Inventor: COSTANTINO, Paolo, Chiron SRL, Via Fiorentina 1, I-53100 Siena,
IT Residence: IT Nationality: IT

Agent: MARSHALL, Cameron, John, Carpmaels Ransford, 43-45 Bloomsbury

Square, London WC1A 2RA, GB
Language: EN (42 pages, 6 drawings)
Application: WO 2004IB3366 A 20041004 (Local application)
Priority: GB 200323103 A 20031002
Designated States: (National Original) AE AG AL AM AT AU AZ BA BB BG BR BW
BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR
HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW
MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR
TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(Regional Original) AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR
HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG
ZM ZW

Original IPC: C08B-37/00(A) A61K-31/715(B) A61K-39/095(B)

Current IPC: A61K-31/715(R,A,I,M,EP,20060101,20051008,A)

A61K-31/715(R,I,M,EP,20060101,20051008,C)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

C08B-37/00(R,I,M,EP,20060101,20051008,A)

C08B-37/00(R,I,M,EP,20060101,20051008,C)

Current ECLA class: A61K-31/715 A61K-39/095 C08B-37/00P

Current ECLA ICO class: K61K-39:60P10

Original Abstract: Capsular saccharides derived from serogroups W135 and Y of ~Neisseria meningitidis~ have altered levels of O-acetylation at the 7 and 9 positions of their sialic acid residues, and can be used to make immunogenic compositions. Relative to unmodified native saccharides, derivatives of the invention are preferentially selected during conjugation to carrier proteins, and conjugates of the derivatives show improved immunogenicity compared to native polysaccharides.

L'invention concerne des saccharides capsulaires derives des serogroupes W135 et Y de ~Neisseria meningitidis~ et presentant des taux modifies d'acetylation en ortho au niveau des sites 7 et 9 de leurs residus d'acide sialique, et pouvant etre utilises pour fabriquer des compositions immunogenes. Par rapport aux saccharides natifs non modifies, les derives decrits sont de preference selectionnes lorsqu'ils sont conjugues a des proteines vectrices, et des conjugues de ces derives presentent une immunogenicite amelioree par rapport aux polysaccharides natifs.

10/7/15 (Item 15 from file: 351)
DIALOG(R)File 351:Derwent WPI
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0007899642

WPI ACC NO: 1996-251554/199625

XRAM Acc No: C1996-079594

Combined vaccine against meningitis contg. oligosaccharide conjugates - of Haemophilus influenzae and ****Neisseria**** ****meningitidis**** serotype C.

Patent Assignee: CHIRON SPA (CHIR); CHIRON SRL (CHIR); NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS); BIOCINE SPA (BIOC-N); NOVARTIS VACCINES&DIAGNOSTICS INC (NOVS)

Inventor: CECCARINI C; COSTANTINO P; D'ASCENZI S; DASCENZI S; GIANNOZZI A; NORELLI F; GIANOZZI A

Patent Family (16 patents, 20 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update
WO 1996014086	A1	19960517	WO 1995IB1006	A	19951102	199625 B
EP 789587	A1	19970820	EP 1995935550	A	19951102	199738 E
			WO 1995IB1006	A	19951102	
JP 10509701	W	19980922	WO 1995IB1006	A	19951102	199848 E

US 6251401	B1	20010626	JP 1996515175	A	19951102		
			WO 1995IB1006	A	19951102	200138	E
			US 1997836080	A	19970501		
EP 1312377	A2	20030521	EP 1995935550	A	19951102	200334	E
			EP 200375069	A	19951102		
EP 789587	B1	20030813	EP 1995935550	A	19951102	200355	E
			WO 1995IB1006	A	19951102		
			EP 200375069	A	19951102		
DE 69531501	E	20030918	DE 69531501	A	19951102	200369	E
			EP 1995935550	A	19951102		
			WO 1995IB1006	A	19951102		
ES 2204967	T3	20040501	EP 1995935550	A	19951102	200431	E
JP 2007169302	A	20070705	JP 1996515175	A	19951102	200746	E
			JP 200783117	A	20070327		
JP 3989951	B2	20071010	WO 1995IB1006	A	19951102	200768	E
			JP 1996515175	A	19951102		
EP 789587	B2	20080402	EP 1995935550	A	19951102	200825	E
			WO 1995IB1006	A	19951102		
			EP 200375069	A	20030110		
CA 2204277	C	20100202	CA 2204277	A	19951102	201011	E
			WO 1995IB1006	A	19951102		
CA 2689871	A1	19960517	CA 2204277	A	19951102	201019	E
			CA 2689871	A	19951102		
EP 2204185	A1	20100707	EP 1995935550	A	19951102	201045	E
			EP 200375069	A	20030110		
			EP 201075114	A	19951102		
EP 2204185	A8	20101027	EP 1995935550	A	19951102	201071	E
			EP 200375069	A	20030110		
			EP 201075114	A	19951102		
JP 2011016850	A	20110127	JP 200783117	A	19951102	201108	E
			JP 2010236921	A	20101021		

Priority Applications (no., kind, date): GB 199422096 A 19941102

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 1996014086	A1	EN	32	6	
National Designated States,Original: CA JP US					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE					
EP 789587	A1	EN			PCT Application WO 1995IB1006
Based on OPI patent WO 1996014086					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
JP 10509701	W	JA	30		PCT Application WO 1995IB1006
Based on OPI patent WO 1996014086					
US 6251401	B1	EN			PCT Application WO 1995IB1006
Based on OPI patent WO 1996014086					
EP 1312377	A2	EN			Division of application EP 1995935550
Division of patent EP 789587					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
EP 789587	B1	EN			PCT Application WO 1995IB1006
Related to application EP 200375069					
Related to patent EP 1312377					
Based on OPI patent WO 1996014086					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
DE 69531501	E	DE			Application EP 1995935550
PCT Application WO 1995IB1006					
Based on OPI patent EP 789587					

ES 2204967	T3	ES		Based on OPI patent WO 1996014086 Application EP 1995935550
JP 2007169302	A	JA	16	Based on OPI patent EP 789587 Division of application JP 1996515175
JP 3989951	B2	JA	15	PCT Application WO 1995IB1006 Previously issued patent JP 10509701
EP 789587	B2	EN		Based on OPI patent WO 1996014086 PCT Application WO 1995IB1006 Related to application EP 200375069 Related to patent EP 1312377 Based on OPI patent WO 1996014086
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE				
CA 2204277	C	EN		PCT Application WO 1995IB1006 Based on OPI patent WO 1996014086
CA 2689871	A1	EN		Division of application CA 2204277
EP 2204185	A1	EN		Division of application EP 1995935550 Division of application EP 200375069 Division of patent EP 1312377 Division of patent EP 789587
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE				
EP 2204185	A8	EN		Division of application EP 1995935550 Division of application EP 200375069 Division of patent EP 1312377 Division of patent EP 789587
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE				
JP 2011016850	A	JA	16	Division of application JP 200783117

Alerting Abstract WO A1

Combined meningitis vaccine comprises Hib (Haemophilus influenzae type b) and MenC (****Neisseria**** ****meningitidis**** serotype C) oligosaccharide conjugates (OC), opt. also a MenB OC. Also new are Hib. MenC and opt. MenB OC for simultaneous, separate or sequential admin..

USE - The vaccines are used to treat or prevent bacterial meningitis. Admin is at a rate of 2-10 mug per dose, given intramuscularly at 2, 4 and 6 months of age.

ADVANTAGE - The vaccine protects against both major causes of bacterial meningitis in a single compsn.. It is inexpensive and safer with no interaction between the different antigens.

Title Terms/Index Terms/Additional Words: COMBINATION; VACCINE; MENINGITIS;
CONTAIN; OLIGOSACCHARIDE; CONJUGATE; HAEMOPHILUS; INFLUENZAE;
****NEISSERIA****; ****MENINGITIDIS****; SEROLOGICAL

Class Codes

International Classification (Main): A61K-039/02

(Additional/Secondary): A61K-039/095, A61K-039/102

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/02 A I F B 20060101

A61K-0039/02 A I L B 20060101

A61K-0039/095 A I F B 20060101

A61K-0039/095 A I L B 20060101

A61K-0039/095	A	I	L	R	20060101
A61K-0039/102	A	I		R	20060101
A61K-0039/102	A	I	F	B	20060101
A61K-0039/102	A	I	L	B	20060101
A61K-0039/102	A	I	L	R	20060101
A61K-0039/116	A	I		R	20060101
A61K-0039/116	A	I	F	B	20060101
A61K-0039/116	A	I	L	B	20060101
A61K-0047/48	A	I	F	R	20060101
A61P-0031/04	A	I	L	B	20060101
A61P-0037/04	A	I	L	B	20060101
C07K-0014/195	A	I	L	B	20060101
C07K-0014/195	A	I	L	R	20060101
A61K-0039/02	C	I		B	20060101
A61K-0039/02	C	I	F	B	20100101
A61K-0039/02	C	I	L	B	20100101
A61K-0039/095	C	I		B	20060101
A61K-0039/095	C	I	F	B	20100101
A61K-0039/095	C	I	L	B	20100101
A61K-0039/095	C	I	L	R	20060101
A61K-0039/102	C	I		B	20060101
A61K-0039/102	C	I		R	20060101
A61K-0039/102	C	I	F	B	20060101
A61K-0039/102	C	I	L	B	20100101
A61K-0039/102	C	I	L	R	20100101
A61K-0039/116	C	I		R	20060101
A61K-0039/116	C	I	L	B	20100101
A61K-0047/48	C	I	F	R	20060101
A61P-0031/00	C	I	L	B	20100101
A61P-0037/00	C	I	L	B	20100101
C07K-0014/195	C	I	L	B	20060101
C07K-0014/195	C	I	L	R	20060101

ECLA: A61K-039/102, A61K-039/102+M, A61K-039/116

US Classification, Current Main: 424-197110; Secondary: 424-184100, 424-193100, 424-194100, 424-203100, 424-234100, 424-250100, 424-256100, 424-831000

US Classification, Issued: 424197.11, 424203.1, 424250.1, 424256.1, 424234.1, 424184.1, 424831, 424193.1, 424194.1

JP Classification

FI Term	Facet Rank Type
A61K-039/095	
A61K-039/102	
A61K-039/116	A main
A61K-047/48	
A61K-047/48	Z
A61P-031/04	
C07K-014/195	

F-Term	View Point	Additional
Theme	+ Figure	Code
4C076		
4C085		
4C201		
4H045		
4C085	AA04	
4H045	AA30	
4C085	BA10	
4C085	BA12	
4C085	BA16	
4C085	BA17	
4C085	BA18	

4H045	BA53
4C076	BB15
4C085	BB24
4H045	CA11
4C076	CC06
4C085	CC07
4C085	CC21
4C085	CC24
4H045	DA83
4C085	DD35
4C085	DD84
4C085	DD86
4H045	EA31
4C085	EE03
4C085	EE06
4C076	EE30
4C076	EE59
4C085	FF14
4C076	FF68
4C085	GG01
4C085	GG03
4C085	GG04

File Segment: CPI

DWPI Class: B04; D16

Manual Codes (CPI/A-M): B04-C02V; B04-F10A; B14-A01A5; B14-S11B; D05-H07

Original Publication Data by Authority

Canada

Publication No. CA 2204277 C (Update 201011 E)

Publication Date: 20100202

Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)

Inventor: CECCARINI C

COSTANTINO P

DASCENZI S

GIANNOZZI A

NORELLI F

Language: EN

Application: CA 2204277 A 19951102 (Local application)

WO 1995IB1006 A 19951102 (PCT Application)

Priority: GB 199422096 A 19941102

Related Publication: WO 1996014086 A (Based on OPI patent)

Original IPC: A61K-39/02(I,CA,20060101,A,L) A61K-39/02(I,M,98,20060101,C)

A61K-39/095(I,CA,20060101,A,F) A61K-39/095(I,M,98,20060101,C)

A61K-39/102(I,CA,20060101,A,L) A61K-39/102(I,M,98,20060101,C)

Current IPC: A61K-39/02(B,I,H,CA,20060101,19970804,A,L)

A61K-39/02(B,I,H,CA,20100101,19970804,C,L)

A61K-39/095(B,I,H,CA,20060101,19970804,A,F)

A61K-39/095(B,I,H,CA,20100101,19970804,C,F)

A61K-39/102(R,I,M,EP,20060101,20051008,A,L)

A61K-39/102(R,I,M,EP,20100101,20051008,C,L)

A61K-39/116(R,I,M,EP,20060101,20051008,A)

A61K-39/116(R,I,M,EP,20060101,20051008,C)

A61K-47/48(R,I,M,JP,20060101,20051220,A,F)

A61K-47/48(R,I,M,JP,20060101,20051220,C,F)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Publication No. CA 2689871 A1 (Update 201019 E)
Publication Date: 19960517
Assignee: NOVARTIS VACCINES & DIAGNOSTICS INC (NOVS)
Inventor: CECCARINI C
COSTANTINO P
DASCENZI S
GIANNOZZI A
NORELLI F
Language: EN
Application: CA 2689871 A 19951102 (Local application)
CA 2204277 A 19951102 (Division of application)
Priority: GB 199422096 A 19941102
Original IPC: A61K-39/095(B,I,H,CA,20060101,20100215,A,F)
A61K-39/095(B,I,H,CA,20100101,20100215,C,F)
A61K-39/102(R,I,M,EP,20060101,20051008,A)
A61K-39/102(R,I,M,EP,20060101,20051008,C)
A61K-39/116(B,I,H,CA,20060101,20100215,A,L)
A61K-39/116(B,I,H,CA,20100101,20100215,C,L)
A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
A61P-31/00(B,I,H,CA,20100101,20100215,C,L)
A61P-31/04(B,I,H,CA,20060101,20100215,A,L)
A61P-37/00(B,I,H,CA,20100101,20100215,C,L)
A61P-37/04(B,I,H,CA,20060101,20100215,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
Current IPC: A61K-39/095(B,I,H,CA,20060101,20100215,A,F)
A61K-39/095(B,I,H,CA,20100101,20100215,C,F)
A61K-39/102(R,I,M,EP,20060101,20051008,A)
A61K-39/102(R,I,M,EP,20060101,20051008,C)
A61K-39/116(B,I,H,CA,20060101,20100215,A,L)
A61K-39/116(B,I,H,CA,20100101,20100215,C,L)
A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
A61P-31/00(B,I,H,CA,20100101,20100215,C,L)
A61P-31/04(B,I,H,CA,20060101,20100215,A,L)
A61P-37/00(B,I,H,CA,20100101,20100215,C,L)
A61P-37/04(B,I,H,CA,20060101,20100215,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Germany
Publication No. DE 69531501 E (Update 200369 E)
Publication Date: 20030918
Assignee: CHIRON SPA; IT (CHIR)
Language: DE
Application: DE 69531501 A 19951102 (Local application)
EP 1995935550 A 19951102 (Application)
WO 1995IB1006 A 19951102 (PCT Application)
Priority: GB 199422096 A 19941102
Related Publication: EP 789587 A (Based on OPI patent)
WO 1996014086 A (Based on OPI patent)
Original IPC: A61K-39/02(A) A61K-39/02(A) A61K-39/095(B) A61K-39/095(B)
A61K-39/102(B) A61K-39/102(B)
Current IPC: A61K-39/02(A) A61K-39/02(A) A61K-39/095(B) A61K-39/095(B)
A61K-39/102(B) A61K-39/102(B)

EPO
Publication No. EP 1312377 A2 (Update 200334 E)
Publication Date: 20030521
**Kombiniertes Meningitis Vakzin

Combined meningitis vaccine
Vaccin polyvalent anti-meningite**
Assignee: Chiron S.p.A., Via Fiorentina, 1, 53100 Siena, IT (CHIR)
Inventor: Ceccarini, Costante, Chrion SpA, Via Fiorentina 1, 53100 Siena,
IT
d'Ascenzi, Sandro, Chrion SpA, Via Fiorentina 1, 53100 Siena, IT
Costantino, Paolo, Chrion SpA, Via Fiorentina 1, 53100 Siena, IT
Norelli, Francesco, Chrion SpA, Via Fiorentina 1, 53100 Siena, IT
Giannozzi, Aldo, Chrion SpA, Via Fiorentina 1, 53100 Siena, IT
Agent: Marshall, Cameron John, Carpmaels Ransford, 43 Bloomsbury Square,
London WC1A 2RA, GB
Language: EN
Application: EP 1995935550 A 19951102 (Division of application)
EP 200375069 A 19951102 (Local application)
Priority: GB 199422096 A 19941102
Related Publication: EP 789587 A (Division of patent)
Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
LU MC NL PT SE
Original IPC: A61K-39/02(A) A61K-39/095(B) A61K-39/102(B)
Current IPC: A61K-39/095(R,I,M,JP,20060101,20051220,A,L)
A61K-39/095(R,I,M,JP,20060101,20051220,C,L)
A61K-39/102(R,I,M,EP,20060101,20051008,A)
A61K-39/102(R,I,M,EP,20060101,20051008,C)
A61K-39/116(R,I,M,EP,20060101,20051008,A)
A61K-39/116(R,I,M,EP,20060101,20051008,C)
A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116
Original Abstract: A combined vaccine for bacterial meningitis comprises
Hib and MenC saccharides. div
Claim:
1.A combination meningitis vaccine comprising Hib and MenC saccharides.

2.A vaccine according to claim 1 wherein the Hib and/or MenC saccharide
is an oligosaccharide.

Publication No. EP 2204185 A1 (Update 201045 E)
Publication Date: 20100707
**Kombiniertes Meningitis Vakzin
Combined meningitis vaccine
Vaccin polyvalent anti-meningite**
Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100
Siena (SI), IT (NOVS)
Inventor: Ceccarini, Costante, Via Fiorentina 1, 53100 Siena, IT
Costantino, Paolo, Via Fiorentina 1, 53100 Siena, IT
DASCENZI S, IT
Gianozzi, Aldo, Via Fiorentina 1, 53100 Siena, IT
Norelli, Francesco, Via Fiorentina 1, 53100 Siena, IT
Agent: Marshall, Cameron John, Carpmaels Ransford, 43-45 Bloomsbury
Square, London WC1A 2RA, GB
Language: EN
Application: EP 200375069 A 20030110 (Division of application)
EP 1995935550 A 19951102 (Division of application)
EP 201075114 A 19951102 (Local application)
Priority: GB 199422096 A 19941102
Related Publication: EP 1312377 A (Division of patent)
EP 789587 A (Division of patent)
Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
LU MC NL PT SE

Original IPC: A61K-39/02 (B, I, H, EP, 20060101, 20100520, A, F)

A61K-39/02 (B, I, M, 98, 20060101, 20100520, C)

A61K-39/095 (B, I, H, EP, 20060101, 20100520, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20100520, C)

A61K-39/102 (B, I, H, EP, 20060101, 20100520, A, L)

A61K-39/102 (B, I, M, 98, 20060101, 20100520, C)

Current IPC: A61K-39/02 (B, I, H, EP, 20060101, 20100520, A, F)

A61K-39/02 (B, I, H, EP, 20100101, 20100520, C, F)

A61K-39/095 (B, I, H, EP, 20060101, 20100520, A, L)

A61K-39/095 (B, I, H, EP, 20100101, 20100520, C, L) A61K-39/102 (B, I, H, EP, 20060101, 20100520, A, L) A61K-39/102 (B, I, H, EP, 20100101, 20100520, C, L)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)

A61K-47/48 (R, I, M, JP, 20060101, 20051220, A, F)

A61K-47/48 (R, I, M, JP, 20060101, 20051220, C, F)

C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)

C07K-14/195 (R, I, M, JP, 20060101, 20051220, C, L)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Original Abstract: A combined vaccine for bacterial meningitis comprises Hib and MenC saccharides.

Claim:

- 1.A combination meningitis vaccine comprising Hib saccharide conjugate and MenC saccharide conjugate, wherein the MenC and/or Hib conjugates is/are in lyophilised form.

Publication No. EP 2204185 A8 (Update 201071 E)

Publication Date: 20101027

Combined meningitis vaccine

Assignee: NOVARTIS VACCINESDIAGNOSTICS INC; IT (NOVS)

Inventor: CECCARINI C, IT

DASCENZI S, IT

COSTANTINO P, IT

NORELLI F, IT

GIANOZZI A, IT

Language: EN

Application: EP 201075114 A 19951102 (Local application)

EP 200375069 A 20030110 (Division of application)

EP 1995935550 A 19951102 (Division of application)

Priority: GB 199422096 A 19941102

Related Publication: EP 1312377 A (Division of patent)

EP 789587 A (Division of patent)

Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI

LU MC NL PT SE

Original IPC: A61K-39/02 (B, I, H, EP, 20060101, 20100520, A, F)

A61K-39/02 (B, I, M, 98, 20060101, 20100520, C)

A61K-39/095 (B, I, H, EP, 20060101, 20100520, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20100520, C)

A61K-39/102 (B, I, H, EP, 20060101, 20100520, A, L) A61K-39/102 (B, I, M, 98, 20060101, 20100520, C)

Current IPC: A61K-39/02 (B, I, H, EP, 20060101, 20100520, A, F)

A61K-39/02 (B, I, M, 98, 20060101, 20100520, C)

A61K-39/095 (B, I, H, EP, 20060101, 20100520, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20100520, C)

A61K-39/102 (B, I, H, EP, 20060101, 20100520, A, L)

A61K-39/102 (B, I, M, 98, 20060101, 20100520, C)

Original Abstract: A combined vaccine for bacterial meningitis comprises Hib and MenC saccharides.

Publication No. EP 789587 A1 (Update 199738 E)

Publication Date: 19970820

**KOMBINIERTES MENNINGITIS VAKZINE

COMBINED MENINGITIS VACCINE
 VACCIN POLYVALENT ANTI-MENINGITE**
 Assignee: BIOCINE S.p.A., Via Fiorentina, 1, I-53100 Siena, IT (BIOC-N)
 CHIRON SPA (CHIR)
 Inventor: CECCARINI, Costante, Via di Catignano, 10, I-53010 Castelnuovo
 Berardenga, IT
 COSTANTINO, Paolo, Via Toscana, 11, I-53034 Colle Val d'Elsa, IT
 DASCENZI S
 NORELLI, Francesco, Via Vignale, 16, I-53100 Siena, IT
 GIANNOZZI, Aldo, Via Celso Cittadini, 3, I-53100 Siena, IT
 D'ASCENZI, Sandro, Via Palestro, 24, I-53034 Colle Val d'Elsa, IT
 D'ASCENZI, Sandro, Via Palestro, 24, I-53034 Colle Val d'Elsa, IT
 D'ASCENZI, Sandro, Via Palestro, 24, I-53034 Colle Val d'Elsa, IT
 D'ASCENZI, Sandro, Via Palestro, 24, I-53034 Colle Val d'Elsa, IT
 D'ASCENZI, Sandro, Via Palestro, 24, I-53034 Colle Val d'Elsa, IT
 Agent: Hallybone, Huw George, CARPMAELS AND RANSFORD 43 Bloomsbury Square,
 London WC1A 2RA, GB
 Language: EN
 Application: EP 1995935550 A 19951102 (Local application)
 WO 1995IB1006 A 19951102 (PCT Application)
 Priority: GB 199422096 A 19941102
 Related Publication: WO 1996014086 A (Based on OPI patent)
 Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
 LU MC NL PT SE
 Original IPC: A61K-39/02(A) A61K-39/095(B) A61K-39/102(B)
 Current IPC: A61K-39/095(R,A,I,M,JP,20060101,20051220,A,L)
 A61K-39/095(R,I,M,JP,20060101,20051220,C,L)
 A61K-39/102(R,I,M,EP,20060101,20051008,A)
 A61K-39/102(R,I,M,EP,20060101,20051008,C)
 A61K-39/116(R,I,M,EP,20060101,20051008,A)
 A61K-39/116(R,I,M,EP,20060101,20051008,C)
 A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
 A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
 C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
 C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
 Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116
 Original Abstract: A combined vaccine for bacterial meningitis comprises
 Hib and MenC oligosaccharide conjugates.
 Claim: Combined meningitis vaccine comprises Hib (Haemophilus influenzae
 type b) and MenC (Neisseria meningitidis serotype C) oligosaccharide
 conjugates (OC), opt. also a MenB OC. Also new are Hib. MenC and opt.
 MenB OC for simultaneous, separate or sequential admin..

 Publication No. EP 789587 B1 (Update 200355 E)
 Publication Date: 20030813
 **KOMBINIERTES MENINGITIS VAKZINE
 COMBINED MENINGITIS VACCINE
 VACCIN POLYVALENT ANTI-MENINGITE**
 Assignee: Chiron S.p.A., Via Fiorentina, 1, 53100 Siena, IT (CHIR)
 Inventor: CECCARINI, Costante, Via di Catignano, 10, I-53010 Castelnuovo
 Berardenga, IT
 COSTANTINO, Paolo, Via Toscana, 11, I-53034 Colle Val d'Elsa, IT
 D'ASCENZI, Sandro, Via Palestro, 24, I-53034 Colle Val d'Elsa, IT
 NORELLI, Francesco, Via Vignale, 16, I-53100 Siena, IT
 GIANNOZZI, Aldo, Via Celso Cittadini, 3, I-53100 Siena, IT
 Agent: Hallybone, Huw George, Carpmaels and Ransford, 43 Bloomsbury Square,
 London WC1A 2RA, GB
 Language: EN
 Application: EP 1995935550 A 19951102 (Local application)
 WO 1995IB1006 A 19951102 (PCT Application)
 EP 200375069 A 19951102 (Related to application)
 Priority: GB 199422096 A 19941102

Related Publication: EP 1312377 A (Related to patent)
WO 1996014086 A (Based on OPI patent)
Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
LU MC NL PT SE

Original IPC: A61K-39/02(A) A61K-39/095(B) A61K-39/102(B)

Current IPC: A61K-39/095(R,I,M,JP,20060101,20051220,A,L)

A61K-39/095(R,I,M,JP,20060101,20051220,C,L)

A61K-39/102(R,I,M,EP,20060101,20051008,A)

A61K-39/102(R,I,M,EP,20060101,20051008,C)

A61K-39/116(R,I,M,EP,20060101,20051008,A)

A61K-39/116(R,I,M,EP,20060101,20051008,C)

A61K-47/48(R,I,M,JP,20060101,20051220,A,F)

A61K-47/48(R,I,M,JP,20060101,20051220,C,F)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Claim:

1.Meningitis-Kombinationsimpfstoff, umfassend Hib- und
MenC-Oligosaccharid-Konjugate.

2.Impfstoff nach Anspruch 1, weiterhin umfassend ein
MenB-Oligosaccharid-Konjugat.

1.A combination meningitis vaccine comprising Hib and MenC
oligosaccharide conjugates.

2.A vaccine according to claim 1 further comprising a MenB
oligosaccharide conjugate.

1.Vaccin polyvalent anti-meningite comprenant des conjugues
d'oligosaccharide Hib et MenC.

Publication No. EP 789587 B2 (Update 200825 E)

Publication Date: 20080402

**KOMBINIERTES MENINGITIS VAKZINE

COMBINED MENINGITIS VACCINE

VACCIN POLYVALENT ANTI-MENINGITE**

Assignee: Novartis Vaccines and Diagnostics S.r.l., Via Fiorentina 1, 53100
Siena (SI), IT (NOVS)

Inventor: CECCARINI, Costante, Via di Catignano, 10, I-53010 Castelnuovo
Berardenga, IT

COSTANTINO, Paolo, Via Toscana, 11, I-53034 Colle Val d'Elsa, IT

DASCENZI S

NORELLI, Francesco, Via Vignale, 16, I-53100 Siena, IT

GIANNOZZI, Aldo, Via Celso Cittadini, 3, I-53100 Siena, IT

Agent: Hallybone, Huw George, Carpmaels and Ransford, 43-45 Bloomsbury
Square, London WC1A 2RA, GB

Language: EN

Application: EP 1995935550 A 19951102 (Local application)

WO 1995IB1006 A 19951102 (PCT Application)

EP 200375069 A 20030110 (Related to application)

Priority: GB 199422096 A 19941102

Related Publication: EP 1312377 A (Related to patent)

WO 1996014086 A (Based on OPI patent)

Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
LU MC NL PT SE

Original IPC: A61K-39/02(B,I,H,EP,20060101,19960625,A,F)

A61K-39/02(B,I,M,98,20060101,19960625,C)

A61K-39/095(B,I,H,EP,20060101,19960625,A,L)

A61K-39/095 (B, I, M, 98, 20060101, 19960625, C)
A61K-39/102 (B, I, H, EP, 20060101, 19960625, A, L)
A61K-39/102 (B, I, M, 98, 20060101, 19960625, C)
Current IPC: A61K-39/02 (B, I, H, EP, 20060101, 19960625, A, F)
A61K-39/02 (B, I, H, EP, 20060101, 19960625, C, F)
A61K-39/095 (B, I, H, EP, 20060101, 19960625, A, L)
A61K-39/095 (B, I, H, EP, 20060101, 19960625, C, L)
A61K-39/102 (B, I, H, EP, 20060101, 19960625, A, L)
A61K-39/102 (B, I, H, EP, 20060101, 19960625, C, L)
A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)
A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)
A61K-47/48 (R, I, M, JP, 20060101, 20051220, A, F)
A61K-47/48 (R, I, M, JP, 20060101, 20051220, C, F)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, C, L)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Claim:

1. Meningitis-Kombinationsimpfstoff, umfassend Hib- und
MenC-Oligosaccharid-Konjugate.

1. A combination meningitis vaccine comprising Hib and MenC
oligosaccharide conjugates.

1. Vaccin polyvalent anti-meningite comprenant des conjugués
d'oligosaccharide Hib et MenC.

Spain

Publication No. ES 2204967 T3 (Update 200431 E)

Publication Date: 20040501

Assignee: CHIRON SRL (CHIR)

Language: ES

Application: EP 1995935550 A 19951102 (Application)

Priority: GB 199422096 A 19941102

Related Publication: EP 789587 A (Based on OPI patent)

Original IPC: A61K-39/02 (A) A61K-39/095 (B) A61K-39/102 (B)

Current IPC: A61K-39/095 (R, I, M, JP, 20060101, 20051220, A, L)

A61K-39/095 (R, I, M, JP, 20060101, 20051220, C, L)

A61K-39/102 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/102 (R, I, M, EP, 20060101, 20051008, C)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)

A61K-47/48 (R, I, M, JP, 20060101, 20051220, A, F)

A61K-47/48 (R, I, M, JP, 20060101, 20051220, C, F)

C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)

C07K-14/195 (R, I, M, JP, 20060101, 20051220, C, L)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Japan

Publication No. JP 10509701 W (Update 199848 E)

Publication Date: 19980922

Assignee: BIOGINE SPA (BIOC-N)

Inventor: CECCARINI C

COSTANTINO P

DASCENZI S

NORELLI F

GIANNOZZI A

Language: JA (30 pages)

Application: WO 1995IB1006 A 19951102 (PCT Application)

JP 1996515175 A 19951102 (Local application)

Priority: GB 199422096 A 19941102
Related Publication: WO 1996014086 A (Based on OPI patent)
Original IPC: A61K-39/102(A) A61K-39/095(B) A61K-47/48(B) C07K-14/195(B)
Current IPC: A61K-39/095(R,I,M,JP,20060101,20051220,A,L)
A61K-39/095(R,I,M,JP,20060101,20051220,C,L)
A61K-39/102(R,I,M,EP,20060101,20051008,A)
A61K-39/102(R,I,M,EP,20060101,20051008,C)
A61K-39/116(R,I,M,EP,20060101,20051008,A)
A61K-39/116(R,I,M,EP,20060101,20051008,C)
A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Publication No. JP 2007169302 A (Update 200746 E)
Publication Date: 20070705
COMBINED MENINGITIS VACCINE
Assignee: CHIRON SRL (CHIR-N)
Inventor: CECCARINI COSTANTE
COSTANTINO PAOLO
D'ASCENZI SANDRO
NORELLI FRANCESCO
GIANNOZZI ALDO

Language: JA (16 pages)
Application: JP 1996515175 A 19951102 (Division of application)
JP 200783117 A 20070327 (Local application)
Priority: GB 199422096 A 19941102
Original IPC: A61K-39/095(B,I,H,JP,20060101,20070608,A,L)
A61K-39/095(B,I,M,98,20060101,20070608,C)
A61K-39/102(B,I,H,JP,20060101,20070608,A,F)
A61K-39/102(B,I,M,98,20060101,20070608,C)
A61P-31/00(B,I,M,98,20060101,20070608,C)
A61P-31/04(B,I,H,JP,20060101,20070608,A,L)
Current IPC: A61K-39/095(B,I,H,JP,20060101,20070608,A,L)
A61K-39/095(B,I,H,JP,20060101,20070608,C,L)
A61K-39/102(B,I,H,JP,20060101,20070608,A,F)
A61K-39/102(B,I,H,JP,20060101,20070608,C,F)
A61K-39/116(R,I,M,EP,20060101,20051008,A)
A61K-39/116(R,I,M,EP,20060101,20051008,C)
A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
A61P-31/00(B,I,H,JP,20060101,20070608,C,L)
A61P-31/04(B,I,H,JP,20060101,20070608,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116
Current JP F-Terms: 4C085 4C201 4C085BA16 4C085BA18 4C085CC07 4C085EE03
4C085GG01 4C085GG03
Claim: A combination meningitis vaccine which is described in
this-application specification.

Publication No. JP 2011016850 A (Update 201108 E)
Publication Date: 20110127
Combination meningitis vaccine
Assignee: CHIRON SPA; JP (CHIR)
Language: JA (16 pages)
Application: JP 2010236921 A 20101021 (Local application)
JP 200783117 A 19951102 (Division of application)
Priority: GB 199422096 A 19941102
Original IPC: A61K-39/116(B,I,H,JP,20060101,20101224,A,F)
Current IPC: A61K-39/116(B,I,H,JP,20060101,20101224,A,F)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Current JP FI-Terms: A61K-39/116 (main, A)

Current JP F-Terms: 4C085 4C085AA04 4C085BA16 4C085BA18 4C085BB24 4C085CC07
4C085EE06 4C085FF14

Original Abstract: It is providing Hib and a meningococcus combination vaccine. This is used in prevention of bacterial meningitis and should make an economical, safe, and convenient vaccination possible with respect to the leading cause of a meningitis. In the combination vaccine for treatment of bacterial meningitis, especially one embodiment, The combination vaccine etc. which are effectively protected from the infection by the Haemophilus influenzae B type (Hib), the Neisseria meningitidis (meningococcus) B serotype, and C serotype (MenB, MenC). Absence This invention relates to the combination vaccine for treatment of bacterial meningitis. Especially a combination vaccine is effectively protected from the infection by the Haemophilus influenzae B type (Hib), the Neisseria meningitidis (meningococcus) B serotype, and C serotype (MenB, MenC).

Claim: Invention as described in a specification.

Publication No. JP 3989951 B2 (Update 200768 E)

Publication Date: 20071010

Combination meningitis vaccine

Assignee: CHIRON SPA; JP (CHIR-N)

Language: JA (15 pages)

Application: WO 1995IB1006 A 19951102 (PCT Application)

JP 1996515175 A 19951102 (Local application)

Priority: GB 199422096 A 19941102

Related Publication: JP 10509701 A (Previously issued patent)

WO 1996014086 A (Based on OPI patent)

Original IPC: A61K-39/095 (B, I, H, JP, 20060101, 20070920, A, L)

A61K-39/095 (B, I, M, 98, 20060101, 20070920, C)

A61K-39/102 (B, I, H, JP, 20060101, 20070920, A, F)

A61K-39/102 (B, I, M, 98, 20060101, 20070920, C)

A61K-47/48 (B, I, H, JP, 20060101, 20070920, A, L)

A61K-47/48 (B, I, M, 98, 20060101, 20070920, C)

C07K-14/195 (B, I, H, JP, 20060101, 20070920, A, L)

C07K-14/195 (B, I, M, 98, 20060101, 20070920, C)

Current IPC: A61K-39/095 (B, I, H, JP, 20060101, 20070920, A, L)

A61K-39/095 (B, I, H, JP, 20060101, 20070920, C, L)

A61K-39/102 (B, I, H, JP, 20060101, 20070920, A, F)

A61K-39/102 (B, I, H, JP, 20060101, 20070920, C, F)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)

A61K-47/48 (R, I, M, JP, 20060101, 20051220, A, F)

A61K-47/48 (R, I, M, JP, 20060101, 20051220, C, F)

C07K-14/195 (B, I, H, JP, 20060101, 20070920, A, L)

C07K-14/195 (B, I, H, JP, 20060101, 20070920, C, L)

Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116

Current JP F-Terms: 4C076 4C085 4H045 4C085AA04 4H045AA30 4C085BA10

4C085BA12 4C085BA16 4C085BA17 4C085BA18 4H045BA53 4C076BB15 4C085BB24

4H045CA11 4C076CC06 4C085CC21 4C085CC24 4H045DA83 4C085DD35 4C085DD84

4C085DD86 4H045EA31 4C085EE03 4C076EE30 4C076EE59 4C076FF68 4C085GG03

4C085GG04

Claim: The combination meningitis vaccine containing a Hib oligosaccharide bonded material and a MenC oligosaccharide bonded material.

United States

Publication No. US 6251401 B1 (Update 200138 E)

Publication Date: 20010626

Combined meningitis vaccine.

Assignee: Chiron S.p.A., Siena, IT (CHIR)

Inventor: Ceccarini, Costante, Castelnuovo Berardenga, IT

Costantino, Paolo, Colle Val DprimeElsa, IT
DprimeAscenzi, Sandro, Colle Val DprimeElsa, IT
Norelli, Francesco, Siena, IT
Giannozzi, Aldo, Siena, IT
Agent: Trujillo; Doreen Y.
Harbin; Alisa A.
Blackburn; Robert P.
Language: EN
Application: WO 1995IB1006 A 19951102 (PCT Application)
US 1997836080 A 19970501 (Local application)
Priority: GB 199422096 A 19941102
Related Publication: WO 1996014086 A (Based on OPI patent)
Original IPC: A61K-39/385(A) A61K-39/095(B) A61K-39/102(B) A61K-39/116(B)
Current IPC: A61K-39/095(R,A,I,M,JP,20060101,20051220,A,L)
A61K-39/095(R,I,M,JP,20060101,20051220,C,L)
A61K-39/102(R,I,M,EP,20060101,20051008,A)
A61K-39/102(R,I,M,EP,20060101,20051008,C)
A61K-39/116(R,I,M,EP,20060101,20051008,A)
A61K-39/116(R,I,M,EP,20060101,20051008,C)
A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/102 A61K-39/102+M A61K-39/116
Current US Class (main): 424-197110
Current US Class (secondary): 424-184100 424-193100 424-194100 424-203100
424-234100 424-250100 424-256100 424-831000
Original US Class (main): 424197.11
Original US Class (secondary): 424203.1 424250.1 424256.1 424234.1 424184.1
424831 424193.1 424194.1
Original Abstract: A combined vaccine for bacterial meningitis comprises
Hib and MenC oligosaccharide conjugates.
Claim:
1.A combination bacterial meningitis vaccine comprising
~Haemophilus
influenzae~type B and ~Neisseria meningitidis ~serotype C capsular
oligosaccharide conjugates, wherein capsular oligosaccharides of
~Haemophilus influenzae~type B and ~Neisseria meningitidis
~serotype C are size-selected in order to exclude short-chain
oligomers having a degree of polymerisation of less than 4.

WIPO

Publication No. WO 1996014086 A1 (Update 199625 B)

Publication Date: 19960517

COMBINED MENINGITIS VACCINE

Assignee: BIOCINE S.P.A., IT (BIOC-N)

Inventor: CECCARINI, COSTANTE, IT

COSTANTINO, PAOLO, IT

DASCENZI S

NORELLI, FRANCESCO, IT

GIANNOZZI, ALDO, IT

D'ASCENZI, SANDRO, IT

D'ASCENZI, SANDRO, IT

D'ASCENZI, SANDRO, IT

D'ASCENZI, SANDRO, IT

D'ASCENZI, SANDRO, IT

D'ASCENZI, SANDRO, IT

Language: EN (32 pages, 6 drawings)

Application: WO 1995IB1006 A 19951102 (Local application)

Priority: GB 199422096 A 19941102

Designated States: (National Original) CA JP US

(Regional Original) AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE

Original IPC: A61K-39/02(A) A61K-39/095(B) A61K-39/102(B)
 Current IPC: A61K-39/095(R,A,I,M,JP,20060101,20051220,A,L)
 A61K-39/095(R,I,M,JP,20060101,20051220,C,L)
 A61K-39/102(R,I,M,EP,20060101,20051008,A)
 A61K-39/102(R,I,M,EP,20060101,20051008,C)
 A61K-39/116(R,I,M,EP,20060101,20051008,A)
 A61K-39/116(R,I,M,EP,20060101,20051008,C)
 A61K-47/48(R,I,M,JP,20060101,20051220,A,F)
 A61K-47/48(R,I,M,JP,20060101,20051220,C,F)
 C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
 C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
 Current ECLA class: A61K-39/102 A61K-39/102+M
 Original Abstract: A combined vaccine for bacterial meningitis comprises
 Hib and MenC oligosaccharide conjugates.

10/7/16 (Item 16 from file: 351)
 DIALOG(R)File 351:Derwent WPI
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0006496336
 WPI ACC NO: 1993-303147/199338
 XRAM Acc No: C1993-134992
 New conjugates of heat shock protein and oligo- or ****polysaccharide**** -
 used in vaccines or to prevent or treat bacterial infection
 Patent Assignee: BIOCINE SCLAVO SPA (ISTS); BIOCINE SPA (ISTS); CHIRON
 SPA (CHIR); IST RICERCHE IMMUNOBIOLOGICHE SIENA SRL (RICE-N)
 Inventor: CONSTANTINO P; COSTANTINO P; NORELLI F; RAPPUOLI R; VITI S
 Patent Family (15 patents, 41 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
WO 1993017712	A2	19930916	WO 1993EP516	A	19930308	199338 E
AU 199337462	A	19931005	AU 199337462	A	19930308	199405 E
EP 632727	A1	19950111	EP 1993906489	A	19930308	199507 E
			WO 1993EP516	A	19930308	
WO 1993017712	A3	19931111	WO 1993EP516	A	19930308	199514 E
JP 7504423	W	19950518	JP 1993515333	A	19930308	199528 E
			WO 1993EP516	A	19930308	
IT 1262896	B	19960722	IT 1992FI58	A	19920306	199709 E
EP 632727	B1	19971229	EP 1993906489	A	19930308	199805 E
			WO 1993EP516	A	19930308	
DE 69315993	E	19980205	DE 69315993	A	19930308	199811 E
			EP 1993906489	A	19930308	
			WO 1993EP516	A	19930308	
US 6403099	B1	20020611	WO 1993EP516	A	19930308	200244 E
			US 1994256847	A	19941101	
CA 2131551	C	20030520	CA 2131551	A	19930308	200335 E
			WO 1993EP516	A	19930308	
JP 2004346083	A	20041209	JP 1993515333	A	19930308	200481 E
			JP 2004216652	A	20040723	
JP 2005068131	A	20050317	JP 1993515333	A	19930308	200520 E
			JP 2004137928	A	20040506	
JP 3641483	B2	20050420	JP 1993515333	A	19930308	200527 E
			WO 1993EP516	A	19930308	
JP 2009102344	A	20090514	JP 2004137928	A	19930308	200933 E
			JP 2008312770	A	20081208	
JP 2011052000	A	20110317	JP 2008312770	A	19930308	201121 E
			JP 2010239145	A	20101025	

Priority Applications (number, kind, date): IT 1992FI58 A 19920306

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 1993017712	A2	EN	69	0	
National Designated States,Original: AT AU BB BG BR CA CH CZ DE DK ES FI GB HU JP KP KR LK LU MG MN MW NL NO NZ PL PT RO RU SD SE SK UA US					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE					
AU 199337462	A	EN			Based on OPI patent WO 1993017712
EP 632727	A1	EN			PCT Application WO 1993EP516
Based on OPI patent WO 1993017712					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
WO 1993017712	A3	EN			
JP 7504423	W	JA			PCT Application WO 1993EP516
Based on OPI patent WO 1993017712					
EP 632727	B1	EN	27		PCT Application WO 1993EP516
Based on OPI patent WO 1993017712					
Regional Designated States,Original: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE					
DE 69315993	E	DE			Application EP 1993906489
PCT Application WO 1993EP516					
Based on OPI patent EP 632727					
Based on OPI patent WO 1993017712					
US 6403099	B1	EN			PCT Application WO 1993EP516
Based on OPI patent WO 1993017712					
CA 2131551	C	EN			PCT Application WO 1993EP516
Based on OPI patent WO 1993017712					
JP 2004346083	A	JA	36		Division of application JP 1993515333
JP 2005068131	A	JA	35		Division of application JP 1993515333
JP 3641483	B2	JA	27		PCT Application WO 1993EP516
Previously issued patent JP 07504423					
Based on OPI patent WO 1993017712					
JP 2009102344	A	JA	35		Division of application JP 2004137928
JP 2011052000	A	JA	35		Division of application JP 2008312770

Alerting Abstract WO A2

A conjugate cpd. comprises at least one heat shock protein (hsp) or portion including at least one immunostimulatory domain; and at least one oligosaccharide or ****polysaccharide****. The shp may be e.g. M. bovis BCG GroEl-type 65 kD hsp (hsp R65), recombinant M. tuberculosis Dnak-type 60 kD hsp (hsp R70) or a hsp from H. pylori.

USE/ADVANTAGE - The hsps are highly conserved across bacteria and they stimulate the cellular immune system. When they are conjugated to a ****polysaccharide**** they provide an immunostimulatory effect and produce anti-****polysaccharide**** antibodies in the absence of adjuvants and of pre-sensitisation. The conjugates can be used as vaccines for prophylactic or therapuetic use. In partic. they can be used for vaccination against bacteia such as H. influenzae, Streptococcus, Salmonella and Meningococci

Title Terms/Index Terms/Additional Words: NEW; CONJUGATE; HEAT; SHOCK; PROTEIN; OLIGO; POLY; SACCHARIDE; VACCINE; PREVENT; TREAT; BACTERIA; INFECT

Class Codes

International Classification (Main): A61K-047/48

(Additional/Secondary): A61K-039/385, C07K-014/195, C07K-002/00

International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0038/00	A	N		R	20060101
A61K-0039/00	A	I	F	B	20060101
A61K-0039/00	A	I	L	R	20060101
A61K-0039/095	A	I		R	20060101
A61K-0039/385	A	I	L	R	20060101
A61K-0047/48	A	I		R	20060101
A61P-0031/04	A	I	L	B	20060101
A61P-0031/04	A	I	L	R	20060101
A61P-0037/04	A	I	L	R	20060101
C07K-0014/195	A	I	L	R	20060101
C07K-0014/205	A	I		R	20060101
C07K-0014/35	A	I		R	20060101
C07K-0014/41	A	I	L	R	20060101
C07K-0019/00	A	I	L	R	20060101
C08B-0037/00	A	I	L	R	20060101
C12N-0015/09	A	I	F	R	20060101
C12P-0021/02	A	I	L	R	20060101
A61K-0031/715	A	I	L	B	20060101
A61K-0039/02	A	I	L	B	20060101
A61K-0047/48	A	I	L	B	20060101
C07K-0014/195	A	I	F	B	20060101
C12N-0015/09	A	I	L	B	20060101
C12P-0019/04	A	N	L	B	20060101
C12P-0021/02	A	N	L	B	20060101
A61K-0038/00	C	N		R	20060101
A61K-0039/00	C	I	F	B	20090101
A61K-0039/00	C	I	L	R	20060101
A61K-0039/095	C	I		R	20060101
A61K-0039/385	C	I	L	R	20060101
A61K-0047/48	C	I		R	20060101
A61P-0031/00	C	I	L	B	20090101
A61P-0031/00	C	I	L	R	20060101
A61P-0037/00	C	I	L	R	20060101
C07K-0014/195	C	I		R	20060101
C07K-0014/41	C	I	L	R	20060101
C07K-0019/00	C	I	L	R	20060101
C08B-0037/00	C	I	L	R	20060101
C12N-0015/09	C	I	F	R	20060101
C12P-0021/02	C	I	L	R	20060101

ECLA: A61K-039/095, A61K-047/48R2V, C07K-014/205, C07K-014/35
ICO: K61K-038:00, K61K-039:00, M07K-207:00, M07K-319:35, M07K-319:40
US Classification, Issued: 424192.1, 530395, 514569, 4357.32, 43512, 424248.1

JP Classification

FI Term	Facet	Rank	Type
A61K-031/715		B	secondary
A61K-039/00	H	ZNA	A main
A61K-039/00	H	ZNA	
A61K-039/00	H		
A61K-039/00	Z		
A61K-039/02		B	secondary
A61K-039/385			
A61K-047/48		ZNA	
A61K-047/48			
A61K-047/48		B	secondary
A61K-047/48	Z		
A61P-031/04		B	secondary
A61P-031/04			
A61P-037/04			
C07K-014/195		ZNA	
C07K-014/195			

C07K-014/195	ZNA	A	main
C07K-014/35		-	additional
C07K-014/35			
C07K-014/41			
C07K-019/00			
C08B-037/00	Z		
C12N-015/00	A		
C12N-015/00	A	B	secondary
C12P-019/04		-	additional
C12P-021/02	C		
C12P-021/02	C	-	additional

F-Term	View Point	Additional
Theme	+ Figure	Code
4B024		
4B064		
4C076		
4C085		
4C090		
4C201		
4H045		
4C086		
4B024	AA01	
4C086	AA01	
4C086	AA02	
4C090	AA02	
4C085	AA03	
4C086	AA03	
4C085	AA04	
4C090	AA05	
4C090	AA09	
4H045	AA10	
4H045	AA11	
4C076	AA12	
4H045	AA20	
4H045	AA30	
4B064	AF11	
4B064	AG31	
4C090	BA01	
4C085	BA07	
4C085	BA09	
4H045	BA10	
4C085	BA20	
4B024	BA31	
4C085	BA38	
4H045	BA41	
4C090	BA51	
4H045	BA53	
4C076	BB11	
4C085	BB11	
4C085	BB12	
4C085	BB24	
4C090	BB62	
4C090	BB65	
4C090	BB69	
4C090	BC19	
4C090	BC20	
4B024	CA02	
4B064	CA02	
4B024	CA04	
4B024	CA05	
4B064	CA05	

4B024	CA06	
4B024	CA11	
4H045	CA11	
4B064	CA19	
4C090	CA35	
4C085	CC05	
4C076	CC06	
4C076	CC07	
4C085	CC07	
4C085	CC08	
4C085	CC21	
4B064	CC24	
4C076	CC31	
4C085	CC32	
4C085	CC33	
4B064	DA01	
4B024	DA06	
4C090	DA23	
4H045	DA86	
4C085	DD51	
4C085	DD52	
4C085	DD59	
4C085	DD62	
4C085	DD86	
4B024	EA04	
4C086	EA28	
4H045	EA29	
4H045	EA31	
4C085	EE01	
4C085	EE03	
4C076	EE41	
4C076	EE41	A
4C076	EE59	
4C076	EE59	A
4B024	FA02	
4B024	FA10	
4H045	FA10	
4H045	FA72	
4H045	FA74	
4C085	FF01	
4C085	FF02	
4C085	FF03	
4C085	FF12	
4C085	FF13	
4C085	FF14	
4C085	FF19	
4C085	FF20	
4C076	FF70	
4B024	GA11	
4B024	GA13	
4B024	GA19	
4H045	GA21	
4C085	GG01	
4C085	GG03	
4C085	GG04	
4C085	GG08	
4C085	GG10	
4C076	GG41	
4H045	HA01	
4B024	HA03	
4B024	HA08	
4B024	HA09	

4B024 HA14
4C086 MA02
4C086 MA05
4C086 NA14
4C086 ZB35

File Segment: CPI

DWPI Class: B04; D16

Manual Codes (CPI/A-M): B02-V02; B04-B02B1; B04-B04A5; B04-C02; B04-D01;
B12-A01; B12-A06; D05-C11; D05-H07

Original Publication Data by Authority

Australia

Publication No. AU 199337462 A (Update 199405 E)

Publication Date: 19931005

Assignee: BIOCINE SCLAVO SPA (ISTS)

Inventor: RAPPUOLI R

COSTANTINO P

VITI S

NORELLI F

Language: EN

Application: AU 199337462 A 19930308 (Local application)

Priority: IT 1992FI58 A 19920306

Related Publication: WO 1993017712 A (Based on OPI patent)

Original IPC: A61K-47/48(A) C07K-15/00(B)

Current IPC: A61K-47/48(R,A,I,M,EP,20060101,20051206,A)

A61K-47/48(R,I,M,EP,20060101,20051206,C)

Canada

Publication No. CA 2131551 C (Update 200335 E)

Publication Date: 20030520

Assignee: CHIRON SPA (CHIR-N)

Inventor: VITI S

NORELLI F

RAPPUOLI R

COSTANTINO P

Language: EN

Application: CA 2131551 A 19930308 (Local application)

WO 1993EP516 A 19930308 (PCT Application)

Priority: IT 1992FI58 A 19920306

Related Publication: WO 1993017712 A (Based on OPI patent)

Original IPC: A61K-39/39(A) A61K-39/02(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(R,I,M,JP,20060101,20051220,A,L)

A61K-39/00(R,I,M,JP,20060101,20051220,C,L)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

A61K-39/385(R,I,M,JP,20060101,20051220,A,L)

A61K-39/385(R,I,M,JP,20060101,20051220,C,L)

A61K-47/48(R,I,M,EP,20060101,20051008,A)

A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(R,I,M,JP,20060101,20051220,C,L)

A61P-31/04(R,I,M,JP,20060101,20051220,A,L)

A61P-37/00(R,I,M,JP,20060101,20051220,C,L)

A61P-37/04(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,EP,20060101,20051008,C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)

C07K-14/35(R,I,M,EP,20060101,20051008,A)
C07K-14/41(R,I,M,JP,20060101,20051220,A,L)
C07K-14/41(R,I,M,JP,20060101,20051220,C,L)
C07K-19/00(R,I,M,JP,20060101,20051220,A,L)
C07K-19/00(R,I,M,JP,20060101,20051220,C,L)
C08B-37/00(R,I,M,JP,20060101,20051220,A,L)
C08B-37/00(R,I,M,JP,20060101,20051220,C,L)
C12N-15/09(R,I,M,JP,20060101,20051220,A,F)
C12N-15/09(R,I,M,JP,20060101,20051220,C,F)
C12P-21/02(R,I,M,JP,20060101,20051220,A,L)
C12P-21/02(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35
Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35
M07K-319:40

Germany
Publication No. DE 69315993 E (Update 199811 E)
Publication Date: 19980205
Assignee: BIOCINE SPA; IT (BIOC-N)
Language: DE
Application: DE 69315993 A 19930308 (Local application)
EP 1993906489 A 19930308 (Application)
WO 1993EP516 A 19930308 (PCT Application)
Priority: IT 1992FI58 A 19920306
Related Publication: EP 632727 A (Based on OPI patent)
WO 1993017712 A (Based on OPI patent)
Original IPC: A61K-47/48(A) C07K-2/00(B)
Current IPC: A61K-47/48(A) C07K-2/00(B)

EPO
Publication No. EP 632727 A1 (Update 199507 E)
Publication Date: 19950111
**KONJUGATE AUS HITZESCHOCKPROTEINEN UND OLIGO- ODER POLYSACCHARIDEN
CONJUGATES FORMED FROM HEAT SHOCK PROTEINS AND OLIGO- OR POLYSACCHARIDES
COMPOSES CONJUGUES OBTENUS A PARTIR DE PROTEINES DU CHOC THERMIQUE ET
D'OLIGOSACCHARIDES OU DE POLYSACCHARIDES**
Assignee: BIOCINE SpA, Via Fiorentina, 1, I-53100 Siena, IT (ISTS)
Inventor: RAPPUOLI, Rino, Via Calamadre, 39, Quercegrossa, I-53010
Monteriggioni, IT
COSTANTINO, Paolo, Via Toscano, 11, I-53034 Colle Val d'Elsa, IT
VITI, Stefano, Via Dante Alighieri, I-53018 Sovicille, IT
NORELLI, Francesco, Via Vignali, 16, I-53100 Siena, IT
Agent: Hallybone, Huw George, CARPMAELS AND RANSFORD 43 Bloomsbury Square,
London WC1A 2RA, GB
Language: EN
Application: EP 1993906489 A 19930308 (Local application)
WO 1993EP516 A 19930308 (PCT Application)
Priority: IT 1992FI58 A 19920306
Related Publication: WO 1993017712 A (Based on OPI patent)
Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
LU MC NL PT SE
Original IPC: A61K-47/48(A) C07K-15/00(B)
Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)
A61K-38/00(R,N,M,EP,20060101,20051008,C)
A61K-39/00(R,I,M,JP,20060101,20051220,A,L)
A61K-39/00(R,I,M,JP,20060101,20051220,C,L)
A61K-39/095(R,I,M,EP,20060101,20051008,A)
A61K-39/095(R,I,M,EP,20060101,20051008,C)
A61K-39/385(R,I,M,JP,20060101,20051220,A,L)
A61K-39/385(R,I,M,JP,20060101,20051220,C,L)
A61K-47/48(R,I,M,EP,20060101,20051008,A)
A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(R,I,M,JP,20060101,20051220,C,L)
A61P-31/04(R,I,M,JP,20060101,20051220,A,L)
A61P-37/00(R,I,M,JP,20060101,20051220,C,L)
A61P-37/04(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,EP,20060101,20051008,C)
C07K-14/205(R,I,M,EP,20060101,20051008,A)
C07K-14/35(R,I,M,EP,20060101,20051008,A)
C07K-14/41(R,I,M,JP,20060101,20051220,A,L)
C07K-14/41(R,I,M,JP,20060101,20051220,C,L)
C07K-19/00(R,I,M,JP,20060101,20051220,A,L) C07K-19/00(R,I,
M,JP,20060101,20051220,C,L) C08B-37/00(R,I,M,JP,20060101,20051220,A,L)
C08B-37/00(R,I,M,JP,20060101,20051220,C,L)
C12N-15/09(R,I,M,JP,20060101,20051220,A,F)
C12N-15/09(R,I,M,JP,20060101,20051220,C,F)
C12P-21/02(R,I,M,JP,20060101,20051220,A,L)
C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

Original Abstract: A conjugate compound comprises at least one heat shock protein or portion thereof including at least one immunostimulatory domain and at least one capsular oligosaccharide or polysaccharide of a pathogenic bacteria. The compound comprises oligosaccharides of the Meningococci C (MenC) group and a heat shock protein selected from (M. bovis) BCG GroEl-type 65kDa hsp (hspR65), recombinant (M. tuberculosis) DnaK-type 70kDa hsp (hspR70) and a heat shock protein from (H. pylori). The conjugate compounds are useful in the preparation of vaccines to prevent bacterial infection.

Claim: A conjugate cpd. comprises at least one heat shock protein (hsp) or portion including at least one immunostimulatory domain; and at least one oligosaccharide or polysaccharide. The shp may be e.g. M. bovis BCG GroEl-type 65 kD hsp (hsp R65), recombinant M. tuberculosis Dnak-type 60 kD hsp (hsp R70) or a hsp from H. pylori.

Publication No. EP 632727 B1 (Update 199805 E)

Publication Date: 19971229

**KONJUGATE AUS HITZESHOCKPROTEINEN UND OLIGO- ODER POLYSACCHARIDEN
CONJUGATES FORMED FROM HEAT SHOCK PROTEINS AND OLIGO- OR POLYSACCHARIDES
COMPOSES CONJUGUES OBTENUS A PARTIR DE PROTEINES DU CHOC THERMIQUE ET
D'OLIGOSACCHARIDES OU DE POLYSACCHARIDES**

Assignee: BIOCINE S.p.A., Via Fiorentina, 1, I-53100 Siena, IT (BIOC-N)

Inventor: RAPPUOLI, Rino, Via Calamadre, 39, Quercegrossa, I-53010

Monteriggioni, IT

COSTANTINO, Paolo, Via Toscano, 11, I-53034 Colle Val d'Elsa, IT

VITI, Stefano, Via Dante Alighieri, I-53018 Sovicille, IT

NORELLI, Francesco, Via Vignali, 16, I-53100 Siena, IT

Agent: Hallybone, Huw George, CARPMAELS AND RANSFORD 43 Bloomsbury Square,
London WC1A 2RA, GB

Language: EN (27 pages)

Application: EP 1993906489 A 19930308 (Local application)

WO 1993EP516 A 19930308 (PCT Application)

Priority: IT 1992FI58 A 19920306

Related Publication: WO 1993017712 A (Based on OPI patent)

Designated States: (Regional Original) AT BE CH DE DK ES FR GB GR IE IT LI
LU MC NL PT SE

Original IPC: A61K-47/48(A) C07K-2/00(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(R,I,M,JP,20060101,20051220,A,L)

A61K-39/00(R,I,M,JP,20060101,20051220,C,L)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095 (R, I, M, EP, 20060101, 20051008, C)
A61K-39/385 (R, I, M, JP, 20060101, 20051220, A, L)
A61K-39/385 (R, I, M, JP, 20060101, 20051220, C, L)
A61K-47/48 (R, I, M, EP, 20060101, 20051008, A)
A61K-47/48 (R, I, M, EP, 20060101, 20051008, C)
A61P-31/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61P-31/04 (R, I, M, JP, 20060101, 20051220, A, L)
A61P-37/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61P-37/04 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, EP, 20060101, 20051008, C)
C07K-14/205 (R, I, M, EP, 20060101, 20051008, A)
C07K-14/35 (R, I, M, EP, 20060101, 20051008, A)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, C, L)
C08B-37/00 (R, I, M, JP, 20060101, 20051220, A, L)
C08B-37/00 (R, I, M, JP, 20060101, 20051220, C, L)
C12N-15/09 (R, I, M, JP, 20060101, 20051220, A, F)
C12N-15/09 (R, I, M, JP, 20060101, 20051220, C, F)
C12P-21/02 (R, I, M, JP, 20060101, 20051220, A, L)
C12P-21/02 (R, I, M, JP, 20060101, 20051220, C, L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

Claim:

- * 1. Konjugatverbindung, die mindestens ein Hitzeschockprotein oder einen Teil davon umfasst, enthaltend mindestens eine immunstimulierende Domaene und mindestens ein Oligosaccharid oder Polysaccharid.

- * 1. A conjugate compound comprising at least one heat shock protein or portion thereof including at least one immunostimulatory domain and at least one oligosaccharide or polysaccharide.

Italy

Publication No. IT 1262896 B (Update 199709 E)

Publication Date: 19960722

Assignee: IST RICERCHE IMMUNOBIOLOGICHE SIENA SRL (RICE-N)

Language: IT

Application: IT 1992FI58 A 19920306 (Local application)

Original IPC: C08G(A)

Current IPC: A61K-38/00 (R, A, N, M, EP, 20060101, 20051008, A)

A61K-38/00 (R, N, M, EP, 20060101, 20051008, C)
A61K-39/00 (R, I, M, JP, 20060101, 20051220, A, L)
A61K-39/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61K-39/095 (R, I, M, EP, 20060101, 20051008, A)
A61K-39/095 (R, I, M, EP, 20060101, 20051008, C)
A61K-39/385 (R, I, M, JP, 20060101, 20051220, A, L)
A61K-39/385 (R, I, M, JP, 20060101, 20051220, C, L)
A61K-47/48 (R, I, M, EP, 20060101, 20051008, A)
A61K-47/48 (R, I, M, EP, 20060101, 20051008, C)
A61P-31/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61P-31/04 (R, I, M, JP, 20060101, 20051220, A, L)
A61P-37/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61P-37/04 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, EP, 20060101, 20051008, C)
C07K-14/205 (R, I, M, EP, 20060101, 20051008, A)
C07K-14/35 (R, I, M, EP, 20060101, 20051008, A)

C07K-14/41 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, C, L)
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C07K-19/00 (R, I, M, JP, 20060101, 20051220, C, L)
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C08B-37/00 (R, I, M, JP, 20060101, 20051220, C, L)
C12N-15/09 (R, I, M, JP, 20060101, 20051220, A, F)
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C12P-21/02 (R, I, M, JP, 20060101, 20051220, A, L)
C12P-21/02 (R, I, M, JP, 20060101, 20051220, C, L)
Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35
Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35
M07K-319:40

Japan
Publication No. JP 7504423 W (Update 199528 E)
Publication Date: 19950518
Assignee: BIOCINE SCLAVO SPA (ISTS)
Inventor: RAPPUOLI R
COSTANTINO P
NORELLI F
Language: JA
Application: JP 1993515333 A 19930308 (Local application)
WO 1993EP516 A 19930308 (PCT Application)
Priority: IT 1992FI58 A 19920306
Related Publication: WO 1993017712 A (Based on OPI patent)
Original IPC: A61K-47/48(A) A61K-39/385(B) C07K-14/195(B)
Current IPC: A61K-47/48(A) A61K-39/385(B) C07K-14/195(B)
Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35
Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35
M07K-319:40

Publication No. JP 2004346083 A (Update 200481 E)
Publication Date: 20041209
CONJUGATE FORMED FROM HEAT SHOCK PROTEIN AND OLIGO- OR POLYSACCHARIDE
Assignee: CHIRON SRL (CHIR-N)
Inventor: RAPPUOLI RINO
CONSTANTINO PAOLO
VITI STEFANO
NORELLI FRANCESCO
Language: JA (36 pages)
Application: JP 1993515333 A 19930308 (Division of application)
JP 2004216652 A 20040723 (Local application)
Priority: IT 1992FI58 A 19920306
Original IPC: C07K-14/195(A) A61K-39/00(B) C07K-14/35(B) C08B-37/00(B)
C12P-21/02(B)
Current IPC: A61K-38/00 (R, A, N, M, EP, 20060101, 20051008, A)
A61K-38/00 (R, N, M, EP, 20060101, 20051008, C)
A61K-39/00 (R, I, M, JP, 20060101, 20051220, A, L)
A61K-39/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61K-39/095 (R, I, M, EP, 20060101, 20051008, A)
A61K-39/095 (R, I, M, EP, 20060101, 20051008, C)
A61K-39/385 (R, I, M, JP, 20060101, 20051220, A, L)
A61K-39/385 (R, I, M, JP, 20060101, 20051220, C, L)
A61K-47/48 (R, I, M, EP, 20060101, 20051008, A)
A61K-47/48 (R, I, M, EP, 20060101, 20051008, C)
A61P-31/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61P-31/04 (R, I, M, JP, 20060101, 20051220, A, L)
A61P-37/00 (R, I, M, JP, 20060101, 20051220, C, L)
A61P-37/04 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, EP, 20060101, 20051008, C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)
C07K-14/35(R,I,M,EP,20060101,20051008,A)
C07K-14/41(R,I,M,JP,20060101,20051220,A,L)
C07K-14/41(R,I,M,JP,20060101,20051220,C,L)
C07K-19/00(R,I,M,JP,20060101,20051220,A,L)
C07K-19/00(R,I,M,JP,20060101,20051220,C,L)
C08B-37/00(R,I,M,JP,20060101,20051220,A,L)
C08B-37/00(R,I,M,JP,20060101,20051220,C,L)
C12N-15/09(R,I,M,JP,20060101,20051220,A,F)
C12N-15/09(R,I,M,JP,20060101,20051220,C,F)
C12P-21/02(R,I,M,JP,20060101,20051220,A,L)
C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35
Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35
M07K-319:40

Current JP F-Terms: 4B024 4B064 4C085 4C090 4H045 4B024AA01 4C090AA02
4C085AA03 4C090AA05 4C090AA09 4H045AA10 4H045AA11 4H045AA20 4H045AA30
4B064AG31 4C090BA01 4H045BA10 4B024BA31 4C090BA51 4C085BB11 4C085BB12
4B064CA02 4B024CA04 4B024CA05 4B024CA06 4B024CA11 4H045CA11 4B064CA19
4C090CA35 4B064CC24 4B064DA01 4B024DA06 4C090DA23 4H045DA86 4C085DD51
4B024EA04 4H045EA31 4C085EE03 4B024FA02 4B024FA10 4H045FA72 4H045FA74
4B024GA11 4B024GA19 4B024HA03 4B024HA08 4B024HA09 4B024HA14

Publication No. JP 2005068131 A (Update 200520 E)

Publication Date: 20050317

**CONJUGATE FORMED FROM HEAT SHOCK PROTEIN AND OLIGOSACCHARIDE OR
POLYSACCHARIDE**

Assignee: CHIRON SRL (CHIR-N)

Inventor: RAPPUOLI RINO

CONSTANTINO PAOLO

VITI STEFANO

NORELLI FRANCESCO

Language: JA (35 pages)

Application: JP 1993515333 A 19930308 (Division of application)

JP 2004137928 A 20040506 (Local application)

Priority: IT 1992FI58 A 19920306

Original IPC: A61K-39/00(A) A61K-47/48(B) A61P-31/04(B) A61P-37/04(B)

C07K-14/195(B) C07K-14/35(B) C07K-19/00(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)
A61K-39/00(R,I,M,JP,20060101,20051220,A,L)
A61K-39/00(R,I,M,JP,20060101,20051220,C,L)
A61K-39/095(R,I,M,EP,20060101,20051008,A)
A61K-39/095(R,I,M,EP,20060101,20051008,C)
A61K-39/385(R,I,M,JP,20060101,20051220,A,L)
A61K-39/385(R,I,M,JP,20060101,20051220,C,L)
A61K-47/48(R,I,M,EP,20060101,20051008,A)
A61K-47/48(R,I,M,EP,20060101,20051008,C)
A61P-31/00(R,I,M,JP,20060101,20051220,C,L)
A61P-31/04(R,I,M,JP,20060101,20051220,A,L)
A61P-37/00(R,I,M,JP,20060101,20051220,C,L)
A61P-37/04(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,EP,20060101,20051008,C)
C07K-14/205(R,I,M,EP,20060101,20051008,A)
C07K-14/35(R,I,M,EP,20060101,20051008,A)
C07K-14/41(R,I,M,JP,20060101,20051220,A,L)
C07K-14/41(R,I,M,JP,20060101,20051220,C,L)
C07K-19/00(R,I,M,JP,20060101,20051220,A,L)
C07K-19/00(R,I,M,JP,20060101,20051220,C,L)
C08B-37/00(R,I,M,JP,20060101,20051220,A,L)
C08B-37/00(R,I,M,JP,20060101,20051220,C,L)

C12N-15/09(R,I,M,JP,20060101,20051220,A,F)
C12N-15/09(R,I,M,JP,20060101,20051220,C,F)
C12P-21/02(R,I,M,JP,20060101,20051220,A,L)
C12P-21/02(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35
Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35
M07K-319:40
Current JP F-Terms: 4C076 4C085 4C201 4H045 4C085AA03 4H045AA10 4H045AA11
4C085BA07 4H045BA10 4H045BA41 4C076BB11 4C085BB24 4H045CA11 4C076CC07
4C085CC21 4C076CC31 4H045DA86 4C085DD51 4H045EA31 4C076EE41 4C076EE59
4H045FA74 4C076FF70 4C085GG01

Publication No. JP 2009102344 A (Update 200933 E)
Publication Date: 20090514
b CONJUGATE FORMED FROM HEAT SHOCK PROTEIN AND OLIGOSACCHARIDE OR
POLYSACCHARIDE**

Assignee: CHIRON SRL (CHIR-N)

Inventor: RAPPUOLI RINO

CONSTANTINO PAOLO

VITI STEFANO

NORELLI FRANCESCO

Language: JA (35 pages)

Application: JP 2008312770 A 20081208 (Local application)

JP 2004137928 A 19930308 (Division of application)

Priority: IT 1992FI58 A 19920306

Original IPC: A61K-39/00(B,I,H,JP,20060101,20090417,A,F)

A61K-39/00(B,I,M,98,20060101,20090417,C)

A61P-31/00(B,I,M,98,20060101,20090417,C)

A61P-31/04(B,I,H,JP,20060101,20090417,A,L)

C07K-14/195(B,N,M,98,20060101,20090417,C)

C07K-14/35(B,N,H,JP,20060101,20090417,A,L)

Current IPC: A61K-38/00(R,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(B,I,H,JP,20060101,20090417,A,F)

A61K-39/00(B,I,H,JP,20090101,20090417,C,F)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

A61K-39/385(R,I,M,JP,20060101,20051220,A,L)

A61K-39/385(R,I,M,JP,20060101,20051220,C,L)

A61K-47/48(R,I,M,EP,20060101,20051008,A)

A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(B,I,H,JP,20090101,20090417,C,L)

A61P-31/04(B,I,H,JP,20060101,20090417,A,L)

A61P-37/00(R,I,M,JP,20060101,20051220,C,L)

A61P-37/04(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,EP,20060101,20051008,C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)

C07K-14/35(R,I,M,EP,20060101,20051008,A)

C07K-14/41(R,I,M,JP,20060101,20051220,A,L)

C07K-14/41(R,I,M,JP,20060101,20051220,C,L)

C07K-19/00(R,I,M,JP,20060101,20051220,A,L)

C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

C08B-37/00(R,I,M,JP,20060101,20051220,A,L)

C08B-37/00(R,I,M,JP,20060101,20051220,C,L)

C12N-15/09(R,I,M,JP,20060101,20051220,A,F)

C12N-15/09(R,I,M,JP,20060101,20051220,C,F)

C12P-21/02(R,I,M,JP,20060101,20051220,A,L)

C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

Current JP FI-Terms: A61K-39/00 H (main, A, ZNA) A61P-31/04 (secondary, B) C07K-14/35 (additional, -)

Current JP F-Terms: 4C085 4C201 4H045 4C085AA03 4C085AA04 4H045AA30 4H045BA10 4C085BB11 4C085BB24 4H045CA11 4H045EA31 4C085EE03 4H045FA74

Original Abstract: It is achieved by the career|carrier used conventionally and reliance also identifies the novel protein career|carrier which gives a favorable immunogen characteristic conjugate,Make possible the reliably highly potent vaccination which raises the immunogenic response with respect to an oligosaccharide and polysaccharide.The conjugate compound containing some heat-shock proteins which contain at least one heat-shock protein or at least one immunostimulation domain, and the oligosaccharide or polysaccharide of at least one capsule of a pathogenic microbe.Absence(Field|area of invention)This invention relates to the conjugate compound which consists of a heat-shock protein, and polysaccharide or an oligosaccharide (In particular, it is polysaccharide or the oligosaccharide derived from a capsule of a pathogenic microorganism.).this compound can induce|guide|derive formation of an anti- polysaccharide antibody.Therefore, this compound is useful as a vaccine used for a human and an animal.

Claim: Invention as described in specification.

Publication No. JP 2011052000 A (Update 201121 E)

Publication Date: 20110317

Conjugate formed from a heat-shock protein, an oligosaccharide, or polysaccharide

Assignee: CHIRON SPA; JP (CHIR)

Language: JA (35 pages)

Application: JP 2010239145 A 20101025 (Local application)

JP 2008312770 A 19930308 (Division of application)

Priority: IT 1992FI58 A 19920306

Original IPC: A61K-31/715(B,I,H,JP,20060101,20110218,A,L)

A61K-39/02(B,I,H,JP,20060101,20110218,A,L)

A61K-47/48(B,I,H,JP,20060101,20110218,A,L)

A61P-31/04(B,I,H,JP,20060101,20110218,A,L)

C07K-14/195(B,I,H,JP,20060101,20110218,A,F)

C12N-15/09(B,I,H,JP,20060101,20110218,A,L)

C12P-19/04(B,N,H,JP,20060101,20110218,A,L)

C12P-21/02(B,N,H,JP,20060101,20110218,A,L)

Current IPC: A61K-31/715(B,I,H,JP,20060101,20110218,A,L)

A61K-39/02(B,I,H,JP,20060101,20110218,A,L)

A61K-47/48(B,I,H,JP,20060101,20110218,A,L)

A61P-31/04(B,I,H,JP,20060101,20110218,A,L)

C07K-14/195(B,I,H,JP,20060101,20110218,A,F)

C12N-15/09(B,I,H,JP,20060101,20110218,A,L)

C12P-19/04(B,N,H,JP,20060101,20110218,A,L)

C12P-21/02(B,N,H,JP,20060101,20110218,A,L)

Current JP FI-Terms: C07K-14/195 (main, A, ZNA) A61K-31/715 (secondary, B)

A61K-39/02 (secondary, B) A61K-47/48 (secondary, B) A61P-31/04

(secondary, B) C12N-15/00 A (secondary, B) C12P-19/04 (additional, -)

C12P-21/02 C (additional, -)

Current JP F-Terms: 4B024 4B064 4C076 4C085 4C086 4H045 4B024AA01 4C086AA01

4C086AA02 4C085AA03 4C086AA03 4H045AA11 4H045AA20 4H045AA30 4B064AF11

4B064AG31 4C085BA07 4H045BA10 4B024BA31 4H045BA53 4B024CA02 4B064CA05

4H045CA11 4B064CA19 4B064CC24 4C076CC31 4B064DA01 4B024DA06 4H045DA86

4C085DD51 4C085DD62 4C086EA28 4H045EA29 4C085EE01 4C076EE41A 4C076EE59A

4H045FA10 4H045FA74 4B024GA13 4C085GG03 4C085GG08 4C085GG10 4C086MA02

4C086MA05 4C086NA14 4C086ZB35

Original Abstract: It is achieved by the carrier used conventionally and reliance also identifies the novel protein carrier which gives a favorable immunogen characteristic conjugate,Make possible the reliably highly potent vaccination which raises the immunogenic response with

respect to an oligosaccharide and polysaccharide. The conjugate compound containing some heat-shock proteins which contain at least one heat-shock protein or at least one immunostimulation domain, and the oligosaccharide or polysaccharide of at least one capsule of a pathogenic microbe. Absence (Field|area of invention) This invention relates to the conjugate compound which consists of a heat-shock protein, and polysaccharide or an oligosaccharide (In particular, it is polysaccharide or the oligosaccharide derived from a capsule of a pathogenic microorganism.). this compound can induce|guide|derive formation of an anti- polysaccharide antibody. Therefore, this compound is useful as a vaccine used for a human and an animal.

Claim: Invention as described in a specification.

Publication No. JP 3641483 B2 (Update 200527 E)

Publication Date: 20050420

Assignee: CHIRON SPA (CHIR-N)

Language: JA (27 pages)

Application: JP 1993515333 A 19930308 (Local application)

WO 1993EP516 A 19930308 (PCT Application)

Priority: IT 1992FI58 A 19920306

Related Publication: JP 07504423 A (Previously issued patent)

WO 1993017712 A (Based on OPI patent)

Original IPC: C08B-37/00(A) A61K-39/385(B) A61K-47/48(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(R,I,M,JP,20060101,20051220,A,L)

A61K-39/00(R,I,M,JP,20060101,20051220,C,L)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

A61K-39/385(R,I,M,JP,20060101,20051220,A,L)

A61K-39/385(R,I,M,JP,20060101,20051220,C,L)

A61K-47/48(R,I,M,EP,20060101,20051008,A)

A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(R,I,M,JP,20060101,20051220,C,L)

A61P-31/04(R,I,M,JP,20060101,20051220,A,L)

A61P-37/00(R,I,M,JP,20060101,20051220,C,L)

A61P-37/04(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,EP,20060101,20051008,C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)

C07K-14/35(R,I,M,EP,20060101,20051008,A)

C07K-14/41(R,I,M,JP,20060101,20051220,A,L)

C07K-14/41(R,I,M,JP,20060101,20051220,C,L)

C07K-19/00(R,I,M,JP,20060101,20051220,A,L)

C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

C08B-37/00(R,I,M,JP,20060101,20051220,A,L)

C08B-37/00(R,I,M,JP,20060101,20051220,C,L)

C12N-15/09(R,I,M,JP,20060101,20051220,A,F)

C12N-15/09(R,I,M,JP,20060101,20051220,C,F)

C12P-21/02(R,I,M,JP,20060101,20051220,A,L)

C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

Current JP F-Terms: 4C076 4C085 4C090 4H045 4C090AA02 4C085AA03 4C085AA04

4C090AA05 4C090AA09 4H045AA10 4C076AA12 4H045AA20 4H045AA30 4C085BA07

4C085BA09 4C085BA20 4C085BA38 4H045BA53 4C085BB11 4C085BB24 4C090BB62

4C090BB65 4C090BB69 4C090BC19 4C090BC20 4H045CA11 4C090CA35 4C085CC05

4C076CC06 4C085CC07 4C085CC08 4C085CC21 4C085CC32 4C085CC33 4C090DA23

4C085DD51 4C085DD52 4C085DD59 4C085DD62 4C085DD86 4H045EA29 4H045EA31

4C076EE41A 4C076EE59A 4H045FA74 4C085FF01 4C085FF02 4C085FF03 4C085FF12

4C085FF13 4C085FF14 4C085FF19 4C085FF20 4C076FF70 4H045GA21 4C085GG03

4C085GG04 4C076GG41 4H045HA01

United States

Publication No. US 6403099 B1 (Update 200244 E)

Publication Date: 20020611

****Conjugates formed from heat shock proteins and oligo-or polysaccharides.****

Assignee: Chiron S.p.A., Siena, IT (CHIR)

Inventor: Rappuoli, Rino, Quercegrossa, IT

Costantino, Paolo, Colle d'Prima Elsa, IT

Viti, Stefano, Sovicille, IT

Norelli, Francesco, Siena, IT

Agent: Attwell; Gwilym J.O.

Harbin; Alisa A.

Blackburn; Robert P.

Language: EN

Application: WO 1993EP516 A 19930308 (PCT Application)

US 1994256847 A 19941101 (Local application)

Priority: IT 1992FI58 A 19920306

Related Publication: WO 1993017712 A (Based on OPI patent)

Original IPC: C01B-3/00(A) C07K-1/00(B) G01N-33/554(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(R,I,M,JP,20060101,20051220,A,L)

A61K-39/00(R,I,M,JP,20060101,20051220,C,L)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

A61K-39/385(R,I,M,JP,20060101,20051220,A,L)

A61K-39/385(R,I,M,JP,20060101,20051220,C,L)

A61K-47/48(R,I,M,EP,20060101,20051008,A)

A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(R,I,M,JP,20060101,20051220,C,L)

A61P-31/04(R,I,M,JP,20060101,20051220,A,L)

A61P-37/00(R,I,M,JP,20060101,20051220,C,L)

A61P-37/04(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,EP,20060101,20051008,C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)

C07K-14/35(R,I,M,EP,20060101,20051008,A)

C07K-14/41(R,I,M,JP,20060101,20051220,A,L)

C07K-14/41(R,I,M,JP,20060101,20051220,C,L)

C07K-19/00(R,I,M,JP,20060101,20051220,A,L)

C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

C08B-37/00(R,I,M,JP,20060101,20051220,A,L)

C08B-37/00(R,I,M,JP,20060101,20051220,C,L)

C12N-15/09(R,I,M,JP,20060101,20051220,A,F)

C12N-15/09(R,I,M,JP,20060101,20051220,C,F)

C12P-21/02(R,I,M,JP,20060101,20051220,A,L)

C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

Original US Class (main): 424248.1

Original US Class (secondary): 424192.1 530395 514569 4357.32 43512

Original Abstract: The present invention provides conjugate compounds comprising at least one heat shock protein or portion thereof including at least one immunostimulatory domain and at least one capsular oligosaccharide or polysaccharide of a pathogenic bacteria. The compound comprises oligosaccharides of the Meningococci C (MenC) group and a heat shock protein selected from ~M. bovis ~BCG GroEl-type 65 kDa hsp (hspR65), recombinant ~M. tuberculosis ~DnaK-type 70 kDa hsp (hspR70) and a heat shock protein from ~H. pylori~. The invention also

provides processes for producing conjugate compounds, pharmaceutical compositions comprising conjugate compounds, therapeutic compositions comprising conjugate compounds, and methods of inducing an immune response.

Claim:

- 1.A conjugate compound comprising a portion of at least 11 to 15 amino acid residues of a heat shock protein selected from the group consisting of
~M. bovis ~BCG GroEL-type 65 kDa heat shock protein
and recombinant ~M. tuberculosis ~DnaK-type 70 kDa heat shock protein, wherein said heat shock protein portion includes at least one immunostimulatory domain, said conjugate compound also comprising at least one capsular oligosaccharide or capsular polysaccharide, or immunogenic portion thereof.

WIPO

Publication No. WO 1993017712 A2 (Update 199338 B)

Publication Date: 19930916

**CONJUGATES FORMED FROM HEAT SHOCK PROTEINS AND OLIGO- OR
POLYSACCHARIDES**

Assignee: BIOCINE SCLAVO SPA, IT (ISTS)

Inventor: RAPPUOLI, RINO, IT

COSTANTINO, PAOLO, IT

NORELLI, FRANCESCO, IT

VITI, STEFANO, IT

Language: EN (69 pages, 0 drawings)

Application: WO 1993EP516 A 19930308 (Local application)

Priority: IT 1992FI58 A 19920306

Designated States: (National Original) AT AU BB BG BR CA CH CZ DE DK ES FI
GB HU JP KP KR LK LU MG MN MW NL NO NZ PL PT RO RU SD SE SK UA US

(Regional Original) AT BE CH DE DK ES FR GB GR IE IT LU MC NL OA PT SE

Original IPC: A61K-47/48(A) C07K-15/00(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(R,I,M,JP,20060101,20051220,A,L)

A61K-39/00(R,I,M,JP,20060101,20051220,C,L)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

A61K-39/385(R,I,M,JP,20060101,20051220,A,L)

A61K-39/385(R,I,M,JP,20060101,20051220,C,L)

A61K-47/48(R,I,M,EP,20060101,20051008,A)

A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(R,I,M,JP,20060101,20051220,C,L)

A61P-31/04(R,I,M,JP,20060101,20051220,A,L)

A61P-37/00(R,I,M,JP,20060101,20051220,C,L)

A61P-37/04(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,EP,20060101,20051008,C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)

C07K-14/35(R,I,M,EP,20060101,20051008,A)

C07K-14/41(R,I,M,JP,20060101,20051220,A,L)

C07K-14/41(R,I,M,JP,20060101,20051220,C,L)

C07K-19/00(R,I,M,JP,20060101,20051220,A,L)

C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

C08B-37/00(R,I,M,JP,20060101,20051220,A,L)

C08B-37/00(R,I,M,JP,20060101,20051220,C,L)

C12N-15/09(R,I,M,JP,20060101,20051220,A,F)

C12N-15/09(R,I,M,JP,20060101,20051220,C,F)

C12P-21/02(R,I,M,JP,20060101,20051220,A,L)

C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

Original Abstract: A conjugate compound comprises at least one heat shock protein or portion thereof including at least one immunostimulatory domain and at least one capsular oligosaccharide or polysaccharide of a pathogenic bacteria. The compound comprises oligosaccharides of the Meningococci C (MenC) group and a heat shock protein selected from (M. bovis) BCG GroEl-type 65kDa hsp (hspR65), recombinant (M. tuberculosis) DnaK-type 70kDa hsp (hspR70) and a heat shock protein from (H. pylori). The conjugate compounds are useful in the preparation of vaccines to prevent bacterial infection.

Publication No. WO 1993017712 A3 (Update 199514 E)

Publication Date: 19931111

Assignee: BIOCINE SCLAVO SPA (ISTS)

Inventor: RAPPUOLI R

COSTANTINO P

NORELLI F

Language: EN

Application: WO 1993EP516 A 19930308 (Local application)

Priority: IT 1992FI58 A 19920306

Original IPC: A61K-47/48(A) C07K-15/00(B)

Current IPC: A61K-38/00(R,A,N,M,EP,20060101,20051008,A)

A61K-38/00(R,N,M,EP,20060101,20051008,C)

A61K-39/00(R,I,M,JP,20060101,20051220,A,L)

A61K-39/00(R,I,M,JP,20060101,20051220,C,L)

A61K-39/095(R,I,M,EP,20060101,20051008,A)

A61K-39/095(R,I,M,EP,20060101,20051008,C)

A61K-39/385(R,I,M,JP,20060101,20051220,A,L)

A61K-39/385(R,I,M,JP,20060101,20051220,C,L)

A61K-47/48(R,I,M,EP,20060101,20051008,A)

A61K-47/48(R,I,M,EP,20060101,20051008,C)

A61P-31/00(R,I,M,JP,20060101,20051220,C,L)

A61P-31/04(R,I,M,JP,20060101,20051220,A,L)

A61P-37/00(R,I,M,JP,20060101,20051220,C,L)

A61P-37/04(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L)

C07K-14/195(R,I,M,EP,20060101,20051008,C)

C07K-14/205(R,I,M,EP,20060101,20051008,A)

C07K-14/35(R,I,M,EP,20060101,20051008,A)

C07K-14/41(R,I,M,JP,20060101,20051220,A,L)

C07K-14/41(R,I,M,JP,20060101,20051220,C,L)

C07K-19/00(R,I,M,JP,20060101,20051220,A,L)

C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

C08B-37/00(R,I,M,JP,20060101,20051220,A,L)

C08B-37/00(R,I,M,JP,20060101,20051220,C,L)

C12N-15/09(R,I,M,JP,20060101,20051220,A,F)

C12N-15/09(R,I,M,JP,20060101,20051220,C,F)

C12P-21/02(R,I,M,JP,20060101,20051220,A,L)

C12P-21/02(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/095 A61K-47/48R2V C07K-14/205 C07K-14/35

Current ECLA ICO class: K61K-38:00 K61K-39:00 M07K-207:00 M07K-319:35

M07K-319:40

10/7/17 (Item 17 from file: 351)

DIALOG(R)File 351:Derwent WPI

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0003920445

WPI ACC NO: 1987-009027/198702

XRAM Acc No: C1987-003413

New glycoprotein conjugates - prepd. from protein antigen and

oligosaccharide hapten(s), derived from ****capsular****
 ****polysaccharide**** of Gram-positive and Gram-negative bacteria
 Patent Assignee: IST SIEROTERAPEUTICO & VACCINOGENO (ISTS)
 Inventor: COSTANTINO P; PORRO M
 Patent Family (8 patents, 13 countries)

Patent			Application			
Number	Kind	Date	Number	Kind	Date	Update
EP 208375	A	19870114	EP 1986201160	A	19860702	198702 B
JP 62030726	A	19870209	JP 1986156342	A	19860704	198711 E
US 4711779	A	19871208	US 1986881091	A	19860702	198751 E
CA 1272952	A	19900821				199039 E
IT 1187753	B	19871223	IT 198521451	A	19850705	199044 E
EP 208375	B	19911211	EP 1986201160	A	19860702	199150 E
DE 3682838	G	19920123				199205 E
JP 1995121870	B2	19951225	JP 1986156342	A	19860704	199605 E

Priority Applications (number, kind, date): IT 198521451 A 19850705

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing	Notes
EP 208375	A	EN	12	4		
Regional Designated States, Original: AT BE CH DE FR GB LI LU NL SE						
US 4711779	A	EN	9			
CA 1272952	A	EN				
EP 208375	B	EN				
Regional Designated States, Original: AT BE CH DE FR GB LI LU NL SE						
JP 1995121870	B2	JA	9	0	Based on OPI patent	JP 62030726

Alerting Abstract EP A

New glycoprotein conjugates (I), with trivalent immunogenic activity are obtd. by covalent binding of a proteinic antigen, namely CRM 197, tetanus toxoid or pertussis toxin, with an oligosaccharidic hapten derived from the ****capsular**** ****polysaccharide**** of a Gram-positive bacterium and with one derived from the ****capsular**** ****polysaccharide**** of a Gram-negative bacterium. The haptens are first activated by introduction of terminal ester gps.

Pref. Gram-positive bacteria are Streptococcus pneumoniae and S. beta-emoliticus. Pref. Gram-negative bacteria are ****Neisseria**** ****meningitidis****, Haemophilus influenzae, Pseudomonas aeruginosa and E.coli.

USE/ADVANTAGE - (I) are useful as vaccines against capsulate Gram-positive and Gram-negative bacteria, partic. meningococcus and pneumococcus.

Equivalent Alerting Abstract US A

Glycoprotein conjugates are obtd. by linking an antigenic protein (e.g. CRM 197, tetanus toxoid or pertussis toxin) covalently with one or more oligosaccharidic haptene (obtd. from Gram positive bacterial ****capsular**** ****polysaccharide****) and at least one other oligosaccharidic haptene (from the ****capsular**** ****polysaccharide**** of a Gram negative microorganisms). Both oligosaccharide haptenes are previously activated by introd. of terminal ester gps.

USE - The prods. are components for triple immunisation vaccines. (9pp)o

Title Terms/Index Terms/Additional Words: NEW; CONJUGATE; PREPARATION; PROTEIN; ANTIGEN; OLIGOSACCHARIDE; HAPTEN; DERIVATIVE; CAPSULE; ****POLYSACCHARIDE****; GRAM; POSITIVE; NEGATIVE; BACTERIA

Class Codes

International Classification (Main): A61K-039/116
 (Additional/Secondary): A61K-039/02, A61K-039/05, A61K-039/08, A61K-039/10
 International Classification (+ Attributes)

IPC + Level Value Position Status Version

A61K-0039/116	A	I		R	20060101
C07K-0001/08	A	I	L	R	20060101
C07K-0001/107	A	I	L	R	20060101
C07K-0001/113	A	I	L	R	20060101
C07K-0014/00	A	I	F	R	20060101
C07K-0014/195	A	I	L	R	20060101
C07K-0014/41	A	I	L	R	20060101
C07K-0019/00	A	I	L	R	20060101
A61K-0039/116	C	I		R	20060101
C07K-0001/00	C	I	L	R	20060101
C07K-0014/00	C	I	F	R	20060101
C07K-0014/195	C	I	L	R	20060101
C07K-0014/41	C	I	L	R	20060101
C07K-0019/00	C	I	L	R	20060101

ECLA: A61K-039/116

US Classification, Issued: 42492, 530395, 530397, 530406

JP Classification

FI Term	Facet Rank Type
A61K-039/02	Z indexing
A61K-039/05	Z indexing
A61K-039/08	Z indexing
A61K-039/09	Z indexing
A61K-039/095	Z indexing
A61K-039/10	Z indexing
A61K-039/104	Z indexing
A61K-039/108	Z indexing
A61K-039/116	
C07K-001/08	
C07K-001/107	
C07K-001/113	
C07K-014/00	
C07K-014/195	
C07K-014/41	
C07K-019/00	

F-Term View Point Additional

Theme	+ Figure	Code
4C085		
4H045		
4C085	AA04	
4H045	AA10	
4H045	AA30	
4C085	BA13	
4C085	BA14	
4C085	BA18	
4C085	BA21	
4H045	BA41	
4H045	BA53	
4H045	CA11	
4C085	CC07	
4H045	DA86	
4C085	DD03	
4C085	DD18	
4H045	EA31	
4C085	EE03	
4H045	FA20	
4H045	FA41	
4H045	FA50	
4C085	GG06	

File Segment: CPI
DWPI Class: B04; D16
Manual Codes (CPI/A-M): B02-V02; B04-B04C1; B04-C02F; B12-A01; D05-H07

Original Publication Data by Authority

Canada

Publication No. CA 1272952 A (Update 199039 E)
Publication Date: 19900821
Language: EN
Priority: IT 198521451 A 19850705
Current IPC: A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)
A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)
C07K-1/00 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-1/08 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/107 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/113 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, A, F)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, C, F)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, C, L)
Current ECLA class: A61K-39/116

Germany

Publication No. DE 3682838 G (Update 199205 E)
Publication Date: 19920123
Language: DE
Priority: IT 198521451 A 19850705

EPO

Publication No. EP 208375 A (Update 198702 B)
Publication Date: 19870114
**Glycoproteinkonjugate mit trivalenten immunogener Aktivitaet
Glycoproteinic conjugates having trivalent immunogenic activity
Conjugues glycoproteiniques ayant une activite immunogene trivalente**
Assignee: IST SIEROTERAPEUTICO VACCINOGENO (ISTS)
SCLAVO S.p.A., Via Fiorentina 1, I-53100 Siena, IT
Inventor: Porro, Massimo, Via S. Marco 43, I-56010 Localita' Collanza
Asciano Siena, IT
Costantino, Paolo, Via Toscana 11, I-53034 Colle Di Val D'Elsa'Siena, IT
Agent: Roggero, Sergio, et al, Ing. Barzano Zanardo Milano S.p.A. Via
Borgonuovo 10, I-20121 Milano, IT
Language: EN (12 pages, 4 drawings)
Application: EP 1986201160 A 19860702 (Local application)
Priority: IT 198521451 A 19850705
Designated States: (Regional Original) AT BE CH DE FR GB LI LU NL SE
Original IPC: A61K-39/11 C07K-3/08 C07K-15/14 C07K-17/10 C12P-0/00
Current IPC: A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)
A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)
C07K-1/00 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-1/08 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/107 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/113 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, A, F)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, C, F)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)

C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
C07K-14/41(R,I,M,JP,20060101,20051220,A,L)
C07K-14/41(R,I,M,JP,20060101,20051220,C,L)
C07K-19/00(R,I,M,JP,20060101,20051220,A,L)
C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/116

Original Abstract: Glycoproteinic conjugates having trivalent immunogenic activity obtained by binding, by a covalent bond, to a protein selected among CRM 197, tetanus toxoid, and pertussis toxin, at least an oligosaccharidic hapten derived from the capsular polysaccharide of a gram-positive bacterium and at least an oligosaccharidic hapten derived from the capsular polysaccharide of a gram-negative bacterium, and wherein said oligosaccharidic haptens are previously activated by introducing terminal esters.

Claim: New glycoproteinic conjugates (I), with trivalent immunogenic activity are obtd. by covalent binding of a proteinic antigen, namely CRM 197, tetanus toxoid or pertussis toxin, with an oligosaccharidic hapten derived from the capsular polysaccharide of a Gram-positive bacterium and with one derived from the capsular polysaccharide of a Gram-negative bacterium. The haptens are first activated by introduction of terminal ester gps.

Pref. Gram-positive bacteria are Streptococcus pneumoniae and S. beta-emoliticus. Pref. Gram-negative bacteria are Neisseria meningitidis, Haemophilus influenzae, Pseudomonas aeruginosa and E.coli.

Publication No. EP 208375 B (Update 199150 E)

Publication Date: 19911211

**Glycoproteinkonjugate mit trivalenter immunogener Aktivitaet

Glycoproteinic conjugates having trivalent immunogenic activity

Conjugues glycoproteiniques ayant une activite immunogene trivalente**

Assignee: SCLAVO S.p.A., Via Fiorentina 1, I-53100 Siena, IT

Inventor: Porro, Massimo, Via S. Marco 43, I-56010 Localita' Collanza

Asciano Siena, IT

Costantino, Paolo, Via Toscana 11, I-53034 Colle Di Val D'Elsa'Siena, IT

Agent: Gervasi, Gemma, Dr. et al, Studio Brevetti e Marchi NOTARBARTOLO

GERVASI 33, Viale Bianca Maria, I-20122 Milano, IT

Language: EN

Application: EP 1986201160 A 19860702 (Local application)

Priority: IT 198521451 A 19850705

Designated States: (Regional Original) AT BE CH DE FR GB LI LU NL SE

Original IPC: A61K-39/116 A61K-39/385 C07K-15/14

Current IPC: A61K-39/116(R,A,I,M,EP,20060101,20051008,A)

A61K-39/116(R,I,M,EP,20060101,20051008,C)

C07K-1/00(R,I,M,JP,20060101,20051220,C,L)

C07K-1/08(R,I,M,JP,20060101,20051220,A,L)

C07K-1/107(R,I,M,JP,20060101,20051220,A,L)

C07K-1/113(R,I,M,JP,20060101,20051220,A,L)

C07K-14/00(R,I,M,JP,20060101,20051220,A,F)

C07K-14/00(R,I,M,JP,20060101,20051220,C,F)

C07K-14/195(R,I,M,JP,20060101,20051220,A,L) C07K-14/195(R,I,M,JP,20060101,20051220,C,L) C07K-14/41(R,I,M,JP,20060101,20051220,A,L)

C07K-14/41(R,I,M,JP,20060101,20051220,C,L)

C07K-19/00(R,I,M,JP,20060101,20051220,A,L)

C07K-19/00(R,I,M,JP,20060101,20051220,C,L)

Current ECLA class: A61K-39/116

Claim:

- * 1. Glycoproteinkonjugate mit trivalenter Immunogenaktivitaet, erhalten durch Binden wenigstens eines Oligosaccharidhaptens, stammend vom kapsulaeren Polysaccharid eines gram-positiven Bakteriums, und wenigstens eines Oligosaccharidhaptens, stammend vom kapsulaeren Polysaccharid eines gram-negativen Bakteriums, durch eine kovalente

Bindung an ein Proteinantigen, ausgewaehlt aus CBM 197, Tetanustoxoid oder Pertussistoxin, nach der Voraktivierung der Oligosaccharidhaptene durch Einfuehren von endstaendigen Estergruppen.

- * 1. Glycoproteinic conjugates having trivalent immunogenic activity, obtained by binding, by a covalent bond, to a proteinic antigen selected among CRM 197, tetanus toxoid, or pertussis toxin, at least one oligosaccharidic hapten derived from the capsular polysaccharide of a gram-positive bacterium, and at least one oligosaccharidic hapten derived from the capsular polysaccharide of a gram-negative bacterium, after the preliminary activation of the said oligosaccharidic haptens by the introduction of terminal ester groups.

Italy

Publication No. IT 1187753 B (Update 199044 E)

Publication Date: 19871223

Language: IT

Application: IT 198521451 A 19850705

Priority: IT 198521451 A 19850705

Current IPC: A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)
C07K-1/00 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-1/08 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/107 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/113 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, A, F)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, C, F)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, C, L)

Current ECLA class: A61K-39/116

Japan

Publication No. JP 62030726 A (Update 198711 E)

Publication Date: 19870209

Language: JA

Application: JP 1986156342 A 19860704 (Local application)

Priority: IT 198521451 A 19850705

Current IPC: A61K-39/116 (R, I, M, EP, 20060101, 20051008, A)

A61K-39/116 (R, I, M, EP, 20060101, 20051008, C)
C07K-1/00 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-1/08 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/107 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-1/113 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, A, F)
C07K-14/00 (R, I, M, JP, 20060101, 20051220, C, F)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/195 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-14/41 (R, I, M, JP, 20060101, 20051220, C, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, A, L)
C07K-19/00 (R, I, M, JP, 20060101, 20051220, C, L)

Current ECLA class: A61K-39/116

Current JP FI-Terms: A61K-39:02 (indexing, Z) A61K-39:05 (indexing, Z)

A61K-39:08 (indexing, Z) A61K-39:09 (indexing, Z) A61K-39:095

(indexing, Z) A61K-39:10 (indexing, Z) A61K-39:104 (indexing, Z)
A61K-39:108 (indexing, Z) A61K-39/116 C07K-1/08 C07K-1/107 C07K-1/113
C07K-14/00 C07K-14/195 C07K-14/41 C07K-19/00
Current JP F-Terms: 4C085 4H045 4C085AA04 4H045AA10 4H045AA30 4C085BA13
4C085BA14 4C085BA18 4C085BA21 4H045BA41 4H045BA53 4H045CA11 4C085CC07
4H045DA86 4C085DD03 4C085DD18 4H045EA31 4C085EE03 4H045FA20 4H045FA41
4H045FA50 4C085GG06

Publication No. JP 1995121870 B2 (Update 199605 E)
Publication Date: 19951225
Assignee: IST SIEROTERAPEUTICO & VACCINOGENO (ISTS)
Inventor: PORRO M
COSTANTINO P
Language: JA (9 pages, 0 drawings)
Application: JP 1986156342 A 19860704 (Local application)
Priority: IT 198521451 A 19850705
Related Publication: JP 62030726 A (Based on OPI patent)
Original IPC: A61K-39/116(A) C07K-1/08(B) C07K-14/195(B) A61K-39/116(C)
A61K-39:02(C) A61K-39:05(C) A61K-39/116(D) A61K-39:02(D) A61K-39:08(D)
A61K-39/116(E) A61K-39:02(E) A61K-39:10(E)
Current IPC: A61K-39/116(A) C07K-1/08(B) C07K-14/195(B) A61K-39/116(C)
A61K-39:02(C) A61K-39:05(C) A61K-39/116(D) A61K-39:02(D) A61K-39:08(D)
A61K-39/116(E) A61K-39:02(E) A61K-39:10(E)

United States
Publication No. US 4711779 A (Update 198751 E)
Publication Date: 19871208
Glycoproteinic conjugates having trivalent immunogenic activity
Assignee: Sclavo S.p.A.
Inventor: Porro, Massimo, IT
Costantino, Paolo
Agent: Hedman, Gibson, Costigan Hoare
Language: EN (9 pages)
Application: US 1986881091 A 19860702 (Local application)
Priority: IT 198521451 A 19850705
Original IPC: C07K-17/10 A61K-39/385
Current IPC: A61K-39/116(R,A,I,M,EP,20060101,20051008,A)
A61K-39/116(R,I,M,EP,20060101,20051008,C)
C07K-1/00(R,I,M,JP,20060101,20051220,C,L)
C07K-1/08(R,I,M,JP,20060101,20051220,A,L)
C07K-1/107(R,I,M,JP,20060101,20051220,A,L)
C07K-1/113(R,I,M,JP,20060101,20051220,A,L)
C07K-14/00(R,I,M,JP,20060101,20051220,A,F)
C07K-14/00(R,I,M,JP,20060101,20051220,C,F)
C07K-14/195(R,I,M,JP,20060101,20051220,A,L)
C07K-14/195(R,I,M,JP,20060101,20051220,C,L)
C07K-14/41(R,I,M,JP,20060101,20051220,A,L)
C07K-14/41(R,I,M,JP,20060101,20051220,C,L)
C07K-19/00(R,I,M,JP,20060101,20051220,A,L)
C07K-19/00(R,I,M,JP,20060101,20051220,C,L)
Current ECLA class: A61K-39/116
Original US Class (main): 42492
Original US Class (secondary): 530395 530397 530406
Original Abstract: Glycoproteinic conjugates having trivalent immunogenic activity obtained by binding, by a covalent bond, to a protein selected among CRM 197, tetanus toxoid, and pertussis toxin, at least an oligosaccharidic hapten derived from the capsular polysaccharide of a gram-positive bacterium and at least an oligosaccharidic hapten derived from the capsular polysaccharide of a gram-negative bacterium, and wherein said oligosaccharidic haptens are previously activated by introducing terminal esters.

10/7/18 (Item 1 from file: 24)
DIALOG(R)File 24:CSA Life Sciences Abstracts
(c) 2011 CSA. All rts. reserv.

0004004471 IP ACCESSION NO: 11359805
Toll-like receptor 2 dependent immunogenicity of glycoconjugate vaccines
containing chemically derived zwitterionic polysaccharides

Gallorini, Simona; ****Berti, Francesco****; Mancuso, Giuseppe; Cozzi,
Roberta; Tortoli, Marco; Volpini, Gianfranco; Telford, John L;
Beninati, Concetta; Maione, Domenico; Wack, Andreas
Novartis Vaccines Research Center, Via Fiorentina 1, 53100 Siena, Italy,
[mailto:awack@nimr.mrc.ac.uk]

Proceedings of the National Academy of Sciences, USA, v 106, n 41, p
17481-17486, January , 2009
PUBLICATION DATE: 2009

PUBLISHER: National Academy of Sciences, 2101 Constitution Ave. Washington
DC 20418 USA

DOCUMENT TYPE: Journal Article
RECORD TYPE: Abstract
LANGUAGE: English
SUMMARY LANGUAGE: English
ISSN: 0027-8424
DOI: 10.1073/pnas.0903313106
FILE SEGMENT: Bacteriology Abstracts (Microbiology B); Immunology Abstracts

ABSTRACT:

Group B Streptococcus (GBS) causes serious infection in neonates and is an important target of vaccine development. Zwitterionic polysaccharides (ZPS), obtained through chemical introduction of positive charges into anionic polysaccharides (PS) from GBS, have the ability to activate human and mouse antigen presenting cells (APCs) through toll-like receptor 2 (TLR2). To generate a polysaccharide vaccine with antigen (Ag) and adjuvant properties in one molecule, we have conjugated ZPS with a carrier protein. ZPS-glycoconjugates induce higher T-cell and Ab responses to carrier and PS, respectively, compared to control PS-glycoconjugates made with the native ****polysaccharide**** form. The increased immunogenicity of ZPS-conjugates correlates with their ability to activate dendritic cells (DCs). Moreover, protection of mothers or neonate offspring from lethal GBS challenge is better when mothers are immunized with ZPS-conjugates compared to immunization with PS-conjugates. In TLR2 knockout mice, ZPS-conjugates lose both their increased immunogenicity and protective effect after vaccination. When ZPS are coadministered as adjuvants with unconjugated tetanus toxoid (TT), they have the ability to increase the TT-specific antibody titer. In conclusion, glycoconjugates containing ZPS are potent vaccines. They target Ag to TLR2-expressing APCs and activate these APCs, leading to better T-cell priming and ultimately to higher protective Ab titers. Thus, rational chemical design can generate potent PS-adjuvants with wide application, including glycoconjugates and coadministration with unrelated protein Ags.

10/7/19 (Item 2 from file: 24)
DIALOG(R)File 24:CSA Life Sciences Abstracts
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0003895430 IP ACCESSION NO: 10980141
Chemistry of a new investigational quadrivalent meningococcal conjugate

vaccine that is immunogenic at all ages

Broeker, Michael; Dull, Peter M; Rappuoli, Rino; ****Costantino, Paolo****

Novartis Vaccines and Diagnostics GmbH & Co. KG, Marburg, Germany,
[mailto:Michael.Broeker@Novartis.com]

Vaccine, v 27, n 41, p 5574-5580, September 2009

PUBLICATION DATE: 2009

PUBLISHER: Elsevier Science, The Boulevard Langford Lane Kidlington Oxford
OX5 1GB UK, [mailto:usinfo-f@elsevier.com], [URL:http://www.elsevier.nl]

DOCUMENT TYPE: Journal Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

ISSN: 0264-410X

ELECTRONIC ISSN: 1873-2518

DOI: 10.1016/j.vaccine.2009.07.036

FILE SEGMENT: Bacteriology Abstracts (Microbiology B); Immunology Abstracts

ABSTRACT:

Meningococcal disease is a serious medical condition that can prove fatal within hours in otherwise healthy individuals. Disease incidence is highest in infants, yet there is no broadly protective quadrivalent vaccine that covers this age group. A new investigational quadrivalent meningococcal glycoconjugate vaccine against meningococcal serogroups A, C, W-135, and Y (MenACWY-CRM, Novartis Vaccines, Siena, Italy), has been developed to meet this medical need. This article discusses the vaccine technology behind MenACWY-CRM, focusing on the heritage of CRM sub(197), the conjugation chemistry, the sizing of the oligosaccharides, and the advantages that these may confer on the vaccine. We highlight the differences between available vaccines and look at the clinical experience with vaccines against other diseases, demonstrating the importance of each component to the immunogenicity of conjugate vaccines. The specific technological approach, including conjugation of meningococcal oligosaccharides of defined length to the CRM sub(197) protein, has led to a vaccine that has the potential to provide broad meningococcal protection against serogroups A, C, W-135, and Y for all ages.

10/7/20 (Item 3 from file: 24)

DIALOG(R)File 24:CSA Life Sciences Abstracts

(c) 2011 CSA. All rts. reserv.

0003382995 IP ACCESSION NO: 8554501

Physicochemical characterisation of glycoconjugate vaccines for prevention of meningococcal diseases

Bardotti, Angela; Averani, Giovanni; ****Berti, Francesco****; Berti, Stefania; Carinci, Valeria; D'Ascenzi, Sandro; Fabbri, Barbara; Giannini, Sara; Giannozzi, Aldo; Magagnoli, Claudia; Proietti, Daniela; Norelli, Francesco; Rappuoli, Rino; Ricci, Stefano; ****Costantino, Paolo****

Novartis Vaccines and Diagnostics Srl, Via Fiorentina 1, 53100 Siena, Italy, [mailto:paolo.costantino@novartis.com]

Vaccine, v 26, n 18, p 2284-2296, April 2008

PUBLICATION DATE: 2008

PUBLISHER: Elsevier Science, The Boulevard Langford Lane Kidlington Oxford

OX5 1GB UK, [mailto:usinfo-f@elsevier.com], [URL:http://www.elsevier.nl]

DOCUMENT TYPE: Journal Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

ISSN: 0264-410X

ELECTRONIC ISSN: 1873-2518

DOI: 10.1016/j.vaccine.2008.01.022

FILE SEGMENT: Bacteriology Abstracts (Microbiology B); Immunology Abstracts

ABSTRACT:

Bacterial ****capsular**** polysaccharides covalently linked to an appropriate carrier protein represent the best tool to induce a protective immune response against a wide range of bacterial diseases, such as meningococcal infections. We describe here the physico-chemical characterisation of glycoconjugate molecules designed to prepare a vaccine against ****Neisseria**** ****meningitidis**** serogroups A, C, W135 and Y. The use of a selective conjugation chemistry resulted in well characterised, reproducible and traceable glycoconjugate that can be consistently manufactured at large scale. A pool of physical and spectroscopic methods was used to establish glycosylation ratio, identity, molecular weight profiles, integrity of carrier protein and sites of glycosylation, assuring effective and consistent lots of vaccines.

10/7/21 (Item 4 from file: 24)

DIALOG(R)File 24:CSA Life Sciences Abstracts

(c) 2011 CSA. All rts. reserv.

0003149696 IP ACCESSION NO: 7935788

Introduction of Zwitterionic Motifs into Bacterial Polysaccharides

Generates TLR2 Agonists Able to Activate APCs

Gallorini, Simona; ****Berti, Francesco****; Parente, Pierino; Baronio, Roberta; Aprea, Susanna; D'Oro, Ugo; Pizza, Mariagrazia; Telford, John L; Wack, Andreas

Novartis Vaccines Research Center, Siena, Italy

Journal of Immunology, v 179, n 12, p 8208-8215, December 2007

PUBLICATION DATE: 2007

PUBLISHER: American Association of Immunologists, 9650 Rockville Pike

Bethesda MD 20814-3998 USA, [URL:http://www.jimmunol.org/]

DOCUMENT TYPE: Journal Article

RECORD TYPE: Abstract

LANGUAGE: English

SUMMARY LANGUAGE: English

ISSN: 0022-1767

FILE SEGMENT: Bacteriology Abstracts (Microbiology B); Immunology Abstracts

ABSTRACT:

It was shown previously that bacterial polysaccharides (PS), which naturally contain both positive and negative charges, are able to activate T cells and APCs. However, the vast majority of bacterial PS are anionic and do not have these properties. In this study, we show that chemical introduction of positive charges into naturally anionic bacterial PS confers to the resulting zwitterionic PS (ZPS) the ability to activate pure human monocytes, monocyte-derived dendritic cells, and mouse bone marrow-derived dendritic cells, as do natural bacterial ZPS. Cells are induced to up-regulate MHC class II and costimulatory molecules and to

produce cytokines. In mixed monocyte-T cell cocultures, ZPS induce MHC II-dependent T cell proliferation and up-regulation of activation markers. These stimulatory qualities of ZPS disappear when the positive charge is chemically removed from the molecules and thus the zwitterionic motif is destroyed. The ability of natural and chemically derived ZPS to activate APCs can be blocked by anti-TLR2 mAbs, and TLR2 transfectants show reporter gene transcription upon incubation with ZPS. In conclusion, the generation of a zwitterionic motif in bacterial PS confers the ability to activate both APCs and T cells. This finding has important implications for the design of novel ****polysaccharide**** vaccines.

10/7/22 (Item 1 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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154158714 CA: 154(8)158714u JOURNAL
First Synthesis of C. difficile PS-II Cell Wall Polysaccharide Repeating Unit
AUTHOR(S): Danieli, Elisa; Lay, Luigi; Proietti, Daniela; Berti, Francesco; Costantino, Paolo; Adamo, Roberto
LOCATION: Vaccine Chemistry Department, Novartis Vaccines & Diagnostics, 53100, Siena, Italy
JOURNAL: Organic Lett. (Organic Letters) DATE: 2011 VOLUME: 13 NUMBER: 3
PAGES: 378-381 CODEN: ORLEF7 MEDIA TYPE: online computer file ISSN: 1523-7052 LANGUAGE: English PUBLISHER: American Chemical Society
SECTION:
CA233008 Carbohydrates
IDENTIFIERS: Clostridium difficile surface polysaccharide repeating unit
prepn
DESCRIPTORS:
Clostridium difficile... Glycosides... Glycosylation... Oligosaccharides...
convergent synthesis of C. difficile surface polysaccharide repeating
unit and its nonphosphorylated analog
Diarrhea...
nosocomial; convergent synthesis of C. difficile surface polysaccharide
repeating unit and its nonphosphorylated analog
CAS REGISTRY NUMBERS:
34637-22-4 108869-64-3 121238-27-5 278784-83-1 1010440-34-2
1236190-06-9P 1256157-14-8P 1262208-34-3P 1262208-37-6P
1262208-39-8P 1262208-42-3P 1262208-43-4P 1262208-45-6P
1262208-49-0P 1262208-52-5P 1262208-53-6P 1262208-54-7P
1262208-55-8P 1262208-57-0P 1262208-58-1P 1262208-59-2P
1262208-61-6P 1262208-63-8P 1262208-65-0P 1262208-67-2P
1262208-69-4P 1262208-71-8P 1262208-73-0P 1262208-75-2P convergent
synthesis of C. difficile surface polysaccharide repeating unit and its
nonphosphorylated analog

10/7/23 (Item 2 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2011 American Chemical Society. All rts. reserv.

153478604 CA: 153(19)478604w PATENT
Combinations including pneumococcal serotype 14 saccharide
INVENTOR(AUTHOR): Costantino, Paolo
LOCATION: Switz.
ASSIGNEE: Novartis A.-G.
PATENT: PCT International ; WO 2010109325 A2 DATE: 20100930
APPLICATION: WO 2010IB735 (20100324) *US 2009PV162996 (20090324)
PAGES: 47pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

A61K-0039/02 A I F B 20060101 H EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR; BW; BY; BZ; CA; CH; CL; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PE; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM; ST; SV; SY; TH; TJ DESIGNATED REGIONAL: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV; MC; MK; MT; NL; NO; PL; PT; RO; SE; SI; SK; SM; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LR; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA215002 Immunochemistry

CA214XXX Mammalian Pathological Biochemistry

IDENTIFIERS: Streptococcus Neisseria combination vaccine antigen
crossreactivity

DESCRIPTORS:

Polysaccharides...

capsular; combination pneumococcal meningococcal vaccine with reduced
lacto-N-neotetraose antigenicity

Development, mammalian postnatal...

child; combination pneumococcal meningococcal vaccine with reduced
lacto-N-neotetraose antigenicity

Streptococcus pneumoniae... Vaccines... Antibodies and Immunoglobulins...

Human... Mammalia...

combination pneumococcal meningococcal vaccine with reduced
lacto-N-neotetraose antigenicity

Proteins...

complement factor H-binding; of combination pneumococcal meningococcal
vaccine with reduced lacto-N-neotetraose antigenicity

Protein D...

conjugates; with capsular polysaccharides of Streptococcus pneumoniae

Toxoids...

diphtheria, conjugates; with capsular polysaccharides of Streptococcus
pneumoniae

Toxins...

diphtheria, fragment; conjugates with capsular polysaccharides of
Streptococcus pneumoniae

Lipid A...

for conjugation of carrier proteins to meningococcal
lipooligosaccharides

Protein sequences...

for factor H-binding proteins of Neisseria meningitidis

Neisseria meningitidis...

group B; combination pneumococcal meningococcal vaccine with reduced
lacto-N-neotetraose antigenicity

Lipopolysaccharides...

lipooligosaccharides; combination pneumococcal meningococcal vaccine
with reduced lacto-N-neotetraose antigenicity

Transport proteins...

TbpA; meningococcal lipooligosaccharides derived from strains with
over-expression of

Toxoids...

tetanus, conjugates; with capsular polysaccharides of Streptococcus
pneumoniae

Cell membrane...

vesicles; combination pneumococcal meningococcal vaccine with reduced
lacto-N-neotetraose antigenicity

CAS REGISTRY NUMBERS:

7784-30-7 adjuvant for combination pneumococcal meningococcal vaccine with
reduced lacto-N-neotetraose antigenicity

1246898-01-0 1246898-02-1 1246898-03-2 amino acid sequence; of
 combination pneumococcal meningococcal vaccine with reduced
 lacto-N-neotetraose antigenicity
 13007-32-4 combination pneumococcal meningococcal vaccine with reduced
 lacto-N-neotetraose antigenicity
 10149-14-1 for conjugation of carrier proteins to meningococcal
 lipooligosaccharides
 9033-07-2 Lacto-N-neotetraose biosynthesis glycosyl transferase LgtB;
 meningococcal lipooligosaccharides derived from strains deficient for
 9032-89-7 37277-64-8 219610-16-9 meningococcal lipooligosaccharides
 derived from strains deficient for
 7429-90-5D salts, adjuvant for combination pneumococcal meningococcal
 vaccine with reduced lacto-N-neotetraose antigenicity
 1246900-96-8 1246900-97-9 1246900-98-0 1246900-99-1 1246901-00-7
 1246901-01-8 1246901-02-9 1246901-03-0 1246901-04-1 1246901-05-2
 1246901-06-3 1246901-07-4 1246901-08-5 1246901-09-6 1246901-10-9
 1246901-11-0 1246901-12-1 1246901-13-2 1246901-14-3 1246901-15-4
 1246901-16-5 1246901-17-6 1246901-18-7 1246901-19-8 1246901-20-1
 1246901-21-2 1246901-22-3 1246901-23-4 1246901-24-5 1246901-25-6
 1246901-26-7 1246901-27-8 1246901-28-9 1246901-29-0 1246901-30-3
 1246901-31-4 1246901-32-5 1246901-33-6 1246901-34-7 1246901-35-8
 1246901-36-9 1246901-37-0 1246901-38-1 1246901-39-2 1246901-40-5
 1246901-41-6 1246901-42-7 1246901-43-8 1246901-44-9 1246901-45-0
 1246901-47-2 unclaimed protein sequence; combinations including
 pneumococcal serotype 14 saccharide
 219724-66-0 1112044-56-0 64134-30-1 1246901-46-1 848652-29-9 unclaimed
 sequence; combinations including pneumococcal serotype 14 saccharide

10/7/24 (Item 3 from file: 399)
 DIALOG(R)File 399:CA SEARCH(R)
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152543993 CA: 152(24)543993t PATENT
 Purification of Streptococcus pyogenes GAS carbohydrate by anionic
 exchange chromatography
 INVENTOR(AUTHOR): Costantino, Paolo; Berti, Francesco; Kabanova, Anna;
 Romano, Maria Rosaria
 LOCATION: Switz.
 ASSIGNEE: Novartis AG
 PATENT: PCT International ; WO 201049806 A1 DATE: 20100506
 APPLICATION: WO 2009IB7346 (20091027) *US 2008PV108763 (20081027)
 PAGES: 56pp. CODEN: PIXXD2 LANGUAGE: English
 PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

B01D-0015/36	A	I	F	B	20060101		H	EP
B01D-0061/14	A	I	L	B	20060101		H	EP
C07K-0001/34	A	I	L	B	20060101		H	EP
A61K-0039/09	A	I	L	B	20060101		H	EP
C07K-0001/18	A	I	L	B	20060101		H	EP
C12P-0019/00	A	I	L	B	20060101		H	EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR;
 BW; BY; BZ; CA; CH; CL; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG;
 ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM;
 KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW;
 MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PE; PG; PH; PL; PT; RO; RS; RU; SC; SD;
 SE; SG; SK; SL; SM; ST; SV; SY; TJ; TM DESIGNATED REGIONAL: AT; BE; BG; CH
 ; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV;
 MC; MK; MT; NL; NO; PL; PT; RO; SE; SI; SK; SM; TR; BF; BJ; CF; CG; CI; CM;
 GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD;
 SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA209003 Biochemical Methods

IDENTIFIERS: Streptococcus GAS cell wall polysaccharide purifn, anionic exchange chromatog Streptococcus GAS cell wall polysaccharide

DESCRIPTORS:

Polysaccharides...

GASP (group A Streptococcus cell wall polysaccharide); purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

Alcohols...

mobile phase buffer; purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

Filtration...

orthogonal; purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

Anion exchange chromatography... Filtration... Nucleic acids... Proteins...

Size-exclusion chromatography... Streptococcus group A... Streptococcus

pyogenes... Ultrafiltration...

purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

Filtration...

tangential-flow filtration; purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

CAS REGISTRY NUMBERS:

334756-67-1 anion exchange matrix; purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

9004-61-9 118214-04-3 purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

9004-54-0 uses, gel filtration on; purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

64-17-5 uses, mobile phase buffer; purification of Streptococcus pyogenes GAS carbohydrate by anionic exchange chromatog.

10/7/25 (Item 4 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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152523448 CA: 152(23)523448r JOURNAL

Neisseria meningitidis GNA2132, a heparin-binding protein that induces protective immunity in humans

AUTHOR(S): Serruto, Davide; Spadafina, Tiziana; Ciucchi, Laura; Lewis, Lisa A.; Ram, Sanjay; Tontini, Marta; Santini, Laura; Biolchi, Alessia; Seib, Kate L.; Giuliani, Marzia M.; Donnelly, John J.; Berti, Francesco; Savino, Silvana; Scarselli, Maria; Costantino, Paolo; Kroll, J. Simon; O'Dwyer, Cliona; Qui, Jiazhou; Plaut, Andrew G.; Moxon, Richard; Rappuoli, Rino; Pizza, Mariagrazia; Arico, Beatrice

LOCATION: Novartis Vaccines and Diagnostics, 53100, Siena, Italy

JOURNAL: Proc. Natl. Acad. Sci. U. S. A. (Proceedings of the National Academy of Sciences of the United States of America) DATE: 2010 VOLUME: 107 NUMBER: 8 PAGES: 3770-3775, S3770/1-S3770/9 CODEN: PNASA6 ISSN: 0027-8424 LANGUAGE: English PUBLISHER: National Academy of Sciences

SECTION:

CA215002 Immunochemistry

CA210XXX Microbial, Algal, and Fungal Biochemistry

IDENTIFIERS: Neisseria GNA2132 protein immunity

DESCRIPTORS:

Protein motifs...

arginine-rich; in heparin-binding activity of GNA2132 of Neisseria

Lactoferrins...

cleavage of neisserial heparin-binding antigen by

Proteoglycans...

heparitin sulfate-containing; GNA2132 protein of Neisseria meningitidis binds to

Transport proteins...
NalP; cleavage of neisserial heparin-binding antigen by
Human... Neisseria meningitidis...
Neisseria meningitidis GNA2132 is heparin-binding protein that induces
protective immunity in humans
Virulence(microbial)...
neisserial heparin-binding antigen as factor in
Antigens...
NHBA (neisserial heparin-binding antigen); Neisseria meningitidis
GNA2132 is heparin-binding protein that induces protective immunity in
humans
CAS REGISTRY NUMBERS:
9005-49-6 biological studies, GNA2132 protein of Neisseria meningitidis
binds to

10/7/26 (Item 5 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2011 American Chemical Society. All rts. reserv.

152376270 CA: 152(17)376270w PATENT
Analysis of Vi saccharide of Salmonella typhi
INVENTOR(AUTHOR): Berti, Francesco; Micoli, Francesca; Proietti, Daniela
LOCATION: Italy
ASSIGNEE: Novartis Vaccines and Diagnostics S.R.L.
PATENT: Ital. Appl. ; IT 2008MI001079 A1 DATE: 20080913
APPLICATION: IT 2008MI1079 (20080613)
PAGES: 36pp. CODEN: ITXXCZ LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: G01N-000/A
SECTION:
CA209003 Biochemical Methods
IDENTIFIERS: Vi saccharide Salmonella NMR anion exchange HPLC
DESCRIPTORS:
Electrochemical sensors...
amperometric, pulsed; in determination of Vi saccharide of Salmonella typhi by
anion exchange HPLC
Polysaccharides...
capsular, of Salmonella typhi, deacetylated; determination of Vi saccharide of
Salmonella typhi by NMR and anion exchange HPLC
Citrobacter freundii...
determination of Vi saccharide by NMR and anion exchange HPLC
Salmonella typhi... NMR spectroscopy... Anion exchange HPLC...
determination of Vi saccharide of Salmonella typhi by NMR and anion exchange
HPLC
Antigens...
Vi; determination of Vi saccharide of Salmonella typhi by NMR and anion
exchange HPLC
CAS REGISTRY NUMBERS:
1310-73-2 analysis, deacetylation of Vi saccharide of Salmonella typhi by
76-05-1 analysis, hydrolysis of Vi saccharide of Salmonella typhi by
14014-06-3 deacetylation of Vi saccharide of Salmonella typhi by
77-92-9 64-17-5 uses, internal reference standard for determination of Vi
saccharide of
Salmonella typhi by NMR

10/7/27 (Item 6 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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152045529 CA: 152(2)45529c PATENT

Conjugated Vi saccharides for vaccines against typhoid fever
INVENTOR(AUTHOR): Micoli, Francesca; Costantino, Paolo; Berti, Francesco
LOCATION: Switz.
ASSIGNEE: Novartis AG
PATENT: PCT International ; WO 2009150543 A2 DATE: 20091217
APPLICATION: WO 2009IB6285 (20090612) *GB 200810894 (20080613)
PAGES: 42pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

A61K-0047/48 A I F B 20060101 H EP

A61P-0043/00 A N L B 20060101 H EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR; BW; BY; BZ; CA; CH; CL; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PE; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM; ST; SV; SY; TJ; TM DESIGNATED REGIONAL: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV; MC; MK; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA263003 Pharmaceuticals

CA215XXX Immunochemistry

IDENTIFIERS: Salmonella capsular polysaccharide Vi protein conjugate
typhoid vaccine

DESCRIPTORS:

Polysaccharides...

capsular, Vi; conjugates of Vi Salmonella polysaccharides with carrier
proteins for typhoid vaccines

Salmonella typhi... Typhoid fever... Antigens... Immune adjuvants...

Pharmaceutical carriers... Drug delivery systems...

conjugates of Vi Salmonella polysaccharides with carrier proteins for
typhoid vaccines

Polysaccharides...

conjugates, with carrier proteins; conjugates of Vi Salmonella
polysaccharides with carrier proteins for typhoid vaccines

Toxoids...

tetanus, conjugates with Vi polysaccharide; conjugates of Vi Salmonella
polysaccharides with carrier proteins for typhoid vaccines

Vaccines...

typhoid fever; conjugates of Vi Salmonella polysaccharides with carrier
proteins for typhoid vaccines

CAS REGISTRY NUMBERS:

1892-57-5 conjugates of Vi Salmonella polysaccharides with carrier
proteins for typhoid vaccines

600173-37-3DP conjugates with Vi Salmonella polysaccharides, conjugates of
Vi Salmonella polysaccharides with carrier proteins for typhoid
vaccines

1071-93-8 linker; conjugates of Vi Salmonella polysaccharides with carrier
proteins for typhoid vaccines

10/7/28 (Item 7 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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151156623 CA: 151(7)156623c PATENT

Lipopolysaccharide decontamination during the purification of
biopharmaceuticals

INVENTOR(AUTHOR): Costantino, Paolo

LOCATION: Switz.

ASSIGNEE: Novartis AG

PATENT: PCT International ; WO 200987571 A2 DATE: 20090716

APPLICATION: WO 2009IB133 (20090107) *GB 2008228 (20080107)

PAGES: 13pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

B01J-0020/26 A I F B 20060101 H EP

B01J-0020/28 A I L B 20060101 H EP

B01D-0061/00 A I L B 20060101 H EP

B01D-0067/00 A I L B 20060101 H EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM; ST; SV; SY; TJ; TM; TN; TR DESIGNATED REGIONAL: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV; MC; MK; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA263008 Pharmaceuticals

CA210XXX Microbial, Algal, and Fungal Biochemistry

IDENTIFIERS: lipopolysaccharide decontamination biopharmaceutical purifn

DESCRIPTORS:

Drugs...

biopharmaceuticals; lipopolysaccharide decontamination during the purification of biopharmaceuticals

Purification... Decontamination... Lipopolysaccharides... Polymers...

Gram-negative bacteria... Proteobacteria... Cyanobacteria... Spirochaeta...

Green sulfur bacteria... Chloroflexi... Crenarchaeota... Eubacteria...

Bacilli... Membranes,nonbiological...

lipopolysaccharide decontamination during the purification of biopharmaceuticals

CAS REGISTRY NUMBERS:

25067-34-9 lipopolysaccharide decontamination during purification of biopharmaceuticals

71927-65-6 1069-03-0 lipopolysaccharide decontamination during the purification of biopharmaceuticals

10/7/29 (Item 8 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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151099686 CA: 151(5)99686z PATENT

Production and purification of Streptococcus agalactiae capsular polysaccharides

INVENTOR(AUTHOR): Costantino, Paolo; Norelli, Francesco; Berti, Francesco; Cicala, Concetta Maria; Bazzocchi, Giulia; Fontani, Silvia; Olivieri, Roberto

LOCATION: Switz.

ASSIGNEE: Novartis A.-G.

PATENT: PCT International ; WO 200981276 A2 DATE: 20090702

APPLICATION: WO 2008IB3729 (20081219) *US 2007PV8941 (20071220) *GB 200818453 (20081008)

PAGES: 159pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

C12N-0001/20 A I F B 20060101 H EP

A61K-0039/04 A I L B 20060101 H EP

C12P-0019/04 A I L B 20060101 H EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM; ST; SV; SY; TJ; TM; TN; TR DESIGNATED REGIONAL: AT; BE; BG; CH ; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV; MC; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA216002 Fermentation and Bioindustrial Chemistry

CA210XXX Microbial, Algal, and Fungal Biochemistry

IDENTIFIERS: Streptococcus capsular polysaccharide fermn purifn

DESCRIPTORS:

Lipopolysaccharides...

bacterial; production and purification of Streptococcus agalactiae capsular polysaccharides

Polysaccharides...

capsular; production and purification of Streptococcus agalactiae capsular polysaccharides

Detergents...

cationic; production and purification of Streptococcus agalactiae capsular polysaccharides

Culture media...

defined; production and purification of Streptococcus agalactiae capsular polysaccharides

Yeast...

extract; production and purification of Streptococcus agalactiae capsular polysaccharides

Fermentation...

fed-batch; production and purification of Streptococcus agalactiae capsular polysaccharides

Growth,microbial...

kinetics; production and purification of Streptococcus agalactiae capsular polysaccharides

Filtration...

microfiltration; production and purification of Streptococcus agalactiae capsular polysaccharides

Acetylation...

N-; production and purification of Streptococcus agalactiae capsular polysaccharides

Streptococcus agalactiae... pH... Temperature effects,biological... Mineral elements... Vitamins... Amino acids... Filtration...

Precipitation(chemical)... Solubilization... Ultrafiltration... Nucleic acids... Vaccines... Culture media... Proteins... Pressure...

Nutrition,microbial... Centrifugation... Dialysis... Sterilization and

Disinfection... Sialic acids...

production and purification of Streptococcus agalactiae capsular polysaccharides

Chemical engineering design...

scale-up; production and purification of Streptococcus agalactiae capsular polysaccharides

CAS REGISTRY NUMBERS:

7782-44-7 processes, dissolved; production and purification of Streptococcus agalactiae capsular polysaccharides

50-99-7 83-88-5 59-30-3 7647-14-5 56-41-7 74-79-3 56-85-9 56-40-6

71-00-1 73-32-5 61-90-5 56-87-1 63-68-3 63-91-2 147-85-3 56-45-1

72-19-5 73-22-3 72-18-4 56-84-8 56-86-0 60-18-4 processes, production and purification of Streptococcus agalactiae capsular polysaccharides

58-85-5 98-92-0 137-08-6 67-03-8 58-56-0 7778-77-0 118830-14-1

10049-21-5 7758-11-4 52-89-1 108-24-7 production and purification of Streptococcus agalactiae capsular polysaccharides

7440-44-0 uses, activated; production and purification of Streptococcus agalactiae capsular polysaccharides
64-17-5 10043-52-4 uses, production and purification of Streptococcus agalactiae capsular polysaccharides

10/7/30 (Item 9 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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150166205 CA: 150(9)166205m PATENT
Vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
INVENTOR(AUTHOR): Bigio, Massimo; Averani, Giovanni; Norelli, Francesco;
Berti, Francesco; Bellucci, Cinzia
LOCATION: Switz.
ASSIGNEE: Novartis AG
PATENT: PCT International ; WO 200910877 A2 DATE: 20090122
APPLICATION: WO 2008IB2690 (20080717) *GB 200713880 (20070717)
PAGES: 54pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: A61K-000/A
DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR;
BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES;
FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN;
KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX;
MY; MZ; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG;
SK; SL; SM; ST; SV; SY; TJ; TM; TN; TR DESIGNATED REGIONAL: AT; BE; BG; CH
; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV;
MC; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN;
GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ;
TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM
SECTION:
CA215002 Immunochemistry
CA209XXX Biochemical Methods
CA263XXX Pharmaceuticals
IDENTIFIERS: saccharide antigen carrier protein conjugate hydroxyapatite
binding vaccine purifn
DESCRIPTORS:
Drug delivery systems... Drugs... Immunostimulants...
adjuvants; vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
Purification...
affinity; vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
Toxins...
B; vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
Polysaccharides...
capsular, desialylated; vaccines comprising saccharide antigen
conjugated with hydroxyapatite-binding carrier protein to facilitate
purification
Proteins...
carriers; vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
Antigens... Proteins... Polysaccharides...
conjugates; vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
Proteins...
contaminant; vaccines comprising saccharide antigen conjugated with
hydroxyapatite-binding carrier protein to facilitate purification
Pharmaceutical excipients...

diluents; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Toxoids...
diphtheria; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Particles...
hydroxylapatite; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Vaccines...
influenza; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Biological transport...
iron; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Toxins...
pertussis, protein; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Buffers...
phosphate; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Hemolysins...
pneumolysins; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Epitopes...
poly-; N19; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Epitopes...
poly-; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Proteins...
PspA (pneumococcal surface protein A); vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Proteins...
recombinant; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Streptococcus agalactiae...
serotype V; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Vaccines...
synthetic; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Toxoids...
tetanus; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Toxins...
toxin A; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

Vaccines... Carbohydrates... Glycoconjugates... Antigens... Carriers...
Affinity chromatography... Neisseria meningitidis... Outer membrane proteins... Heat-shock proteins... Cytokines... Hormones, animal...
Lymphokines... Growth factors, animal... Protein D... Haemophilus influenzae... Clostridium difficile... Streptococcus pneumoniae... Pseudomonas aeruginosa... Staphylococcus aureus... Enterococcus faecalis... Enterococcus faecium... Yersinia enterocolitica... Vibrio cholerae... Salmonella typhi... Linking agents... Pharmaceutical gels... Drug delivery systems... Pharmaceutical carriers... Infection... Bacterial infection...
vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

pH...
6.5-7.5; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

CAS REGISTRY NUMBERS:

7439-89-6P biological studies, transport; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification
7664-38-2D salts, buffer systems; vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification
1306-06-5 600173-37-3P 9001-63-2 vaccines comprising saccharide antigen conjugated with hydroxyapatite-binding carrier protein to facilitate purification

10/7/31 (Item 10 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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150041363 CA: 150(3)41363e PATENT

Formulation of meningitis vaccines

INVENTOR(AUTHOR): Contorni, Mario; Costantino, Paolo

LOCATION: Switz.

ASSIGNEE: Novartis AG

PATENT: PCT International ; WO 2008149238 A2 DATE: 20081211

APPLICATION: WO 2008IB2121 (20080604) *US 2007PV933235 (20070604)

PAGES: 28pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

CLASS: A61K-000/A

DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX; MY; MZ; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM; SV; SY; TJ; TM; TN; TR; TT DESIGNATED REGIONAL: AT; BE; BG; CH ; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV; MC; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA263006 Pharmaceuticals

CA215XXX Immunochemistry

IDENTIFIERS: meningitis vaccine formulation

DESCRIPTORS:

Immunostimulants...

adjuvants; formulation of meningitis vaccines

Human poliovirus...

antigens of, conjugates with saccharides; formulation of meningitis vaccines

Pertussis...

conjugates with saccharides; formulation of meningitis vaccines

Toxoids...

diphtheria, conjugates with saccharides; formulation of meningitis vaccines

Vaccines...

diphtheria-tetanus-acellular pertussis-inactivated polio virus; formulation of meningitis vaccines

Vaccines...

diphtheria-tetanus-acellular pertussis-inactivated polio virus-Haemophilus influenzae type b; formulation of meningitis vaccines

Human... Meningitis... Pharmaceutical emulsions... Stabilizing agents...

Vaccines...

formulation of meningitis vaccines

Neisseria meningitidis...

group A, saccharides of, conjugates of; formulation of meningitis

vaccines
 Neisseria meningitidis...
 group C, saccharides of, conjugates of; formulation of meningitis
 vaccines
 Neisseria meningitidis...
 group W-135, saccharides of, conjugates of; formulation of meningitis
 vaccines
 Neisseria meningitidis...
 group Y, saccharides of, conjugates of; formulation of meningitis
 vaccines
 Hepatitis B antigens...
 HBsAg (hepatitis B surface antigen), conjugates with saccharides;
 formulation of meningitis vaccines
 Neisseria meningitidis...
 saccharides of, conjugates of; formulation of meningitis vaccines
 Toxoids...
 tetanus, conjugates with saccharides; formulation of meningitis
 vaccines
 Antibodies and Immunoglobulins...
 to PRP; formulation of meningitis vaccines
 Haemophilus influenzae...
 type b, saccharides of, conjugates of; formulation of meningitis
 vaccines
 CAS REGISTRY NUMBERS:
 600173-37-3D conjugates with saccharides, formulation of meningitis
 vaccines
 7784-30-7 formulation of meningitis vaccines

10/7/32 (Item 11 from file: 399)
 DIALOG(R)File 399:CA SEARCH(R)
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149174110 CA: 149(8)174110w PATENT
 Preparation of modified protein-conjugated capsular oligosaccharides and
 polysaccharides in study of vaccine for Neisseria meningitidis
 INVENTOR(AUTHOR): Bardotti, Angela; Berti, Francesco; Costantino, Paolo
 LOCATION: Switz.
 ASSIGNEE: Novartis AG
 PATENT: PCT International ; WO 200884411 A2 DATE: 20080717
 APPLICATION: WO 2008IB1116 (20080111) *GB 2007562 (20070111)
 PAGES: 84pp. CODEN: PIXXD2 LANGUAGE: English
 PATENT CLASSIFICATIONS:
 CLASS: C07H-000/A
 DESIGNATED COUNTRIES: AE; AG; AL; AM; AO; AT; AU; AZ; BA; BB; BG; BH; BR;
 BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DO; DZ; EC; EE; EG; ES;
 FI; GB; GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN;
 KP; KR; KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; ME; MG; MK; MN; MW; MX;
 MY; MZ; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG;
 SK; SL; SM; SV; SY; TJ; TM; TN; TR; TT DESIGNATED REGIONAL: AT; BE; BG; CH
 ; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HR; HU; IE; IS; IT; LT; LU; LV;
 MC; MT; NL; NO; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN;
 GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ;
 TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM
 SECTION:
 CA215002 Immunochemistry
 CA201XXX Pharmacology
 CA210XXX Microbial, Algal, and Fungal Biochemistry
 CA233XXX Carbohydrates
 CA263XXX Pharmaceuticals
 IDENTIFIERS: diphtheria toxin vaccine immunization Neisseria meningitidis
 capsular polysaccharide, vaccine immunization Neisseria meningitidis

capsular polysaccharide prepn human antibacterial, aminodeoxy
oligosaccharide capsular polysaccharide protein conjugate adjuvant
antigen prepn

DESCRIPTORS:

Immunostimulants...

adjuvants; preparation of modified protein-conjugated capsular
oligosaccharides and polysaccharides in study of vaccine for *Neisseria*
meningitidis

Polysaccharides, biological studies...

capsular; preparation of modified protein-conjugated capsular
oligosaccharides and polysaccharides in study of vaccine for *Neisseria*
meningitidis

Antibodies and Immunoglobulins...

IgG; preparation of modified protein-conjugated capsular oligosaccharides
and polysaccharides in study of vaccine for *Neisseria meningitidis*

Neisseria meningitidis... Antibacterial agents... Bacterial infection...

Antigens... Human... Immunization... Oligosaccharides, biological studies...

Drugs... Toxins... Vaccines...

preparation of modified protein-conjugated capsular oligosaccharides and
polysaccharides in study of vaccine for *Neisseria meningitidis*

CAS REGISTRY NUMBERS:

1039052-04-4D acetylated, derivs., repeating unit; preparation of modified
protein-conjugated capsular oligosaccharides and polysaccharides in
study of vaccine for *Neisseria meningitidis*

1039052-05-5D 1039052-06-6D CRM 197 derivative, preparation of modified
protein-conjugated capsular oligosaccharides and polysaccharides in
study of vaccine for *Neisseria meningitidis*

600173-37-3 1039052-05-5P 1039052-06-6P preparation of modified
protein-conjugated capsular oligosaccharides and polysaccharides in
study of vaccine for *Neisseria meningitidis*

10/7/33 (Item 12 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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147474589 CA: 147(22)474589y PATENT

Separation of conjugated and unconjugated components in vaccines

INVENTOR(AUTHOR): Berti, Francesco; Galletti, Bruno; Parente, Pierino;

Costantino, Paolo

LOCATION: Italy

ASSIGNEE: Novartis Vaccines and Diagnostics Srl

PATENT: PCT International ; WO 2007122512 A2 DATE: 20071101

APPLICATION: WO 2007IB1855 (20070321) *GB 20065757 (20060322)

PAGES: 33pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

CLASS: A61K-000/A

DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BH; BR; BW;
BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB;
GD; GE; GH; GM; GT; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR;
KZ; LA; LC; LK; LR; LS; LT; LU; LY; MA; MD; MG; MK; MN; MW; MX; MY; MZ; NA;
NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM;
SV; SY; TJ; TM; TN; TR; TT; TZ; UA; UG DESIGNATED REGIONAL: AT; BE; BG; CH
; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IS; IT; LT; LU; LV; MC;
MT; NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;
ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG;
ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA263003 Pharmaceuticals

IDENTIFIERS: antigen saccharide conjugate basic salt pptn vaccine quality
control

DESCRIPTORS:

Salts,uses...
 basic, lyotropic; separation of conjugated and unconjugated saccharides
 using basic reagents for quality control of vaccines
Streptococcus agalactiae...
 capsular saccharides; separation of conjugated and unconjugated saccharides
 using basic reagents for quality control of vaccines
Polysaccharides,biological studies...
 conjugates; separation of conjugated and unconjugated saccharides using
 basic reagents for quality control of vaccines
Toxins...
 diphtheria; separation of conjugated and unconjugated saccharides using
 basic reagents for quality control of vaccines
Carbohydrates,biological studies... Polysaccharides,biological studies...
Glycoconjugates... Antigens... Vaccines... Sialic acids...
Precipitation(chemical)... Basicity... Quality control...
 separation of conjugated and unconjugated saccharides using basic reagents
 for quality control of vaccines
Toxoids...
 tetanus; separation of conjugated and unconjugated saccharides using basic
 reagents for quality control of vaccines
CAS REGISTRY NUMBERS:
7664-38-2D acidic alkali metal salts, separation of conjugated and unconjugated
 saccharides using basic reagents for quality control of vaccines
7664-93-9D 64-19-7D 77-92-9D 87-69-4D alkali metal salts, separation of
 conjugated and unconjugated saccharides using basic reagents for
 quality control of vaccines
600173-37-3 7758-11-4 separation of conjugated and unconjugated saccharides
 using basic reagents for quality control of vaccines

10/7/34 (Item 13 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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146294161 CA: 146(15)294161y PATENT
Zwitterionization to convert T-independent into T-dependent immunogenic
bacterial capsular saccharides for use as vaccines
INVENTOR(AUTHOR): Telford, John; Berti, Francesco; Wack, Andreas
LOCATION: Italy
ASSIGNEE: Novartis Vaccines and Diagnostics S.r.l.
PATENT: PCT International ; WO 200723386 A2 DATE: 20070301
APPLICATION: WO 2006IB2833 (20060824) *GB 200517353 (20050824) *GB
20067738 (20060419)
PAGES: 56pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
 CLASS: C07H-000/A
 DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY;
 BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD;
 GE; GH; GM; HN; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LA;
 LC; LK; LR; LS; LT; LU; LV; LY; MA; MD; MG; MK; MN; MW; MX; MY; MZ; NA; NG;
 NI; NO; NZ; OM; PG; PH; PL; PT; RO; RS; RU; SC; SD; SE; SG; SK; SL; SM; SV;
 SY; TJ; TM; TN; TR; TT; TZ; UA; UG; US DESIGNATED REGIONAL: AT; BE; BG; CH
 ; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IS; IT; LT; LU; LV; MC;
 NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML;
 MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM;
 ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM
SECTION:
 CA215002 Immunochemistry
 CA263XXX Pharmaceuticals
IDENTIFIERS: zwitterionization bacterial capsular saccharide antigen T
 cell activation vaccine
DESCRIPTORS:

T cell(lymphocyte)...

- activation; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Infection...

- bacterial; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Polysaccharides,biological studies...

- capsular; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Hydrolysis...

- galactose unit; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Neisseria meningitidis...

- group A; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Neisseria meningitidis...

- group B; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Neisseria meningitidis...

- group C; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Neisseria meningitidis...

- group W-135; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Neisseria meningitidis...

- group Y; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Streptococcus group B...

- Ia, Ib, II, III and V; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Acetyl group...

- N-; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Functional groups...

- neutral, anionic and cationic; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Physical and chemical properties...

- pKb; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Amines,biological studies...

- secondary; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Cell activation...

- T cell; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Carbohydrates,biological studies... Polysaccharides,biological studies...

Oligosaccharides,biological studies...

- zwitterionic; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

Eubacteria... Antigens... Zwitterions... Carboxyl group... Amino group...

Streptococcus agalactiae... Monosaccharides... Neisseria meningitidis...

Aldehydes,biological studies... Formyl group... Streptococcus pneumoniae...

Bacteroides fragilis... Vaccines... T cell(lymphocyte)...

- zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

CAS REGISTRY NUMBERS:

50-00-0 127-17-3 64-19-7 24959-67-9 59-23-4 10028-15-6 10102-43-9

biological studies, zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

131-48-6 7512-17-6 moiety; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

927927-51-3 927927-52-4 927927-53-5 927927-54-6 927927-55-7 927927-56-8 927927-57-9 927927-58-0 927927-59-1 927927-60-4 927927-61-5 927927-62-6 927927-63-7 927927-64-8 927927-65-9 927927-66-0 927927-67-1 927927-68-2 unclaimed sequence; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

927927-69-3 Unclaimed; zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

7790-28-5 151-51-9 2564-83-2 14380-61-1 52720-51-1 9028-79-9 zwitterionization to convert T-independent into T-dependent immunogenic bacterial capsular saccharides for use as vaccines

10/7/35 (Item 14 from file: 399)
 DIALOG(R)File 399:CA SEARCH(R)
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145487661 CA: 145(25)487661z PATENT
 Preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines
 INVENTOR(AUTHOR): Oscarson, Stefan; Teodorovic, Peter; Costantino, Paolo
 LOCATION: Italy
 ASSIGNEE: Novartis Vaccines and Diagnostics S.r.l.; Stockholm University
 PATENT: PCT International ; WO 2006120576 A2 DATE: 20061116
 APPLICATION: WO 2006IB1703 (20060508) *US 2005PV678289 (20050506)
 PAGES: 87pp. CODEN: PIXXD2 LANGUAGE: English
 PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

C07H-0011/04	A	I	F	B	20060101		H	EP
A61K-0039/095	A	I	L	B	20060101		H	EP
A61P-0031/04	A	I	L	B	20060101		H	EP
C07H-0007/00	A	I	L	B	20060101		H	EP
C07H-0013/00	A	I	L	B	20060101		H	EP
C07H-0015/04	A	I	L	B	20060101		H	EP
A61K-0031/702	A	I	L	B	20060101		H	EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; LY; MA; MD; MG; MK; MN; MW; MX; MZ; NA; NG; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RU; SC; SD; SE; SG; SK; SL; SM; SY; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN; YU; ZA DESIGNATED REGIONAL: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IS; IT; LT; LU; LV; MC; NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA215002 Immunochemistry
 CA204XXX Toxicology
 CA263XXX Pharmaceuticals

IDENTIFIERS: Neisseria meningitidis oligosaccharide protein toxin conjugate meningitis A vaccine

DESCRIPTORS:

Immunostimulants...

adjuvants; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Functional groups...
alkoxy groups; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Functional groups...
alkoxycarbonyl groups; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Streptococcus pneumoniae...
antigen; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Functional groups...
azido group; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Toxins...
bacterial; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Reagents...
bifunctional; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Oligosaccharides, biological studies... Proteins... Antigens... Toxins...

Polysaccharides, biological studies...
conjugates; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Carboxylic acids, biological studies...
dicarboxylic; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Toxins...
diphtheria, conjugates; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Toxoids...
diphtheria; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Neisseria meningitidis...
group A; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Neisseria meningitidis...
group B; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Neisseria meningitidis...
group C; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Neisseria meningitidis...
group W-135; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Neisseria meningitidis...
group Y; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Toxins...
heat-labile; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Reaction...
Mitsunobu; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Toxins...
pertussis; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Functional groups...
phosphonate group; preparation of oligosaccharides conjugated with proteins or toxins as meningitidis A vaccines

Oligosaccharides, biological studies... Proteins... Antigens... Escherichia coli... Pseudomonas aeruginosa... Exotoxins... Hydroxyl group... Amino group... Acyl groups... Protective groups... Amide group...

Carbohydrates, biological studies... Vaccines... Meningitis... Drug delivery

systems... Electrophiles... Nucleophiles... Antibodies and Immunoglobulins
... Albumins,biological studies... Polysaccharides,biological studies...
Alums...

preparation of oligosaccharides conjugated with proteins or toxins as
meningitidis A vaccines

Toxins...

T; preparation of oligosaccharides conjugated with proteins or toxins as
meningitidis A vaccines

Toxins...

tetanus; preparation of oligosaccharides conjugated with proteins or toxins
as meningitidis A vaccines

Eubacteria...

toxin; preparation of oligosaccharides conjugated with proteins or toxins as
meningitidis A vaccines

CAS REGISTRY NUMBERS:

3458-28-4D -containing oligosaccharides, preparation of oligosaccharides conjugated
with proteins or toxins as meningitidis A vaccines

124-04-9 biological studies, preparation of oligosaccharides conjugated with
proteins or toxins as meningitidis A vaccines

172223-08-4 172223-09-5P 914641-02-4P 914641-03-5P 914641-04-6P

914641-05-7P 914641-06-8P 914641-07-9 497096-20-5 914641-08-0P

914641-09-1P 914641-10-4P 914641-11-5P 914641-12-6P 914641-13-7P

914641-14-8P 68733-20-0 402831-54-3P 870073-99-7P 870074-00-3P

870074-01-4P 870074-02-5P 870074-04-7P 870074-06-9P 870074-08-1P

870074-12-7P 870074-14-9P 870074-16-1P 870074-18-3P 497096-09-0P

870074-19-4P 870074-20-7P 870074-21-8P 870074-23-0P 870074-25-2P

870074-27-4P 914641-15-9P 914641-17-1P 870074-31-0P 600173-37-3

505-48-6 2892-51-5 preparation of oligosaccharides conjugated with
proteins or toxins as meningitidis A vaccines

914641-18-2DP protein conjugates, preparation of oligosaccharides conjugated
with proteins or toxins as meningitidis A vaccines

10/7/36 (Item 15 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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145209382 CA: 145(11)209382h PATENT

Conjugation of streptococcal capsular saccharides

INVENTOR(AUTHOR): Berti, Francesco

LOCATION: Italy

ASSIGNEE: Chiron Srl

PATENT: PCT International ; WO 200682530 A2 DATE: 20060810

APPLICATION: WO 2006IB756 (20060201) *GB 20052095 (20050201)

PAGES: 48pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

IPCR/8 + Level Value Position Status Version Action Source Office:

A61K-0047/48 A I F B 20060101 H EP

DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY;
BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD;
GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LC; LK;
LR; LS; LT; LU; LV; LY; MA; MD; MG; MK; MN; MW; MX; MZ; NA; NG; NI; NO; NZ;
OM; PG; PH; PL; PT; RO; RU; SC; SD; SE; SG; SK; SL; SM; SY; TJ; TM; TN; TR;
TT; TZ; UA; UG; US; UZ; VC; VN; YU; ZA DESIGNATED REGIONAL: AT; BE; BG; CH
; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IS; IT; LT; LU; LV; MC;
NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML;
MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM;
ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA216002 Fermentation and Bioindustrial Chemistry

CA233XXX Carbohydrates

CA244XXX Industrial Carbohydrates

IDENTIFIERS: streptococcal capsular saccharide conjugation
 DESCRIPTORS:
 Polysaccharides, reactions...
 capsular; conjugation of streptococcal capsular saccharides
 Streptococcus agalactiae... Capsule(microbial)... Oxidation... Linking
 agents... Sialic acids... Human... Reducing agents... Vaccines...
 conjugation of streptococcal capsular saccharides
 Proteins...
 D, as a carrier mol.; conjugation of streptococcal capsular saccharides
 Toxoids...
 diphtheria, as a carrier mol.; conjugation of streptococcal capsular
 saccharides
 Antigens...
 epitope; conjugation of streptococcal capsular saccharides
 Proteins...
 from Streptococcus agalactiae, as a carrier mol.; conjugation of
 streptococcal capsular saccharides
 Amines, reactions...
 primary; conjugation of streptococcal capsular saccharides
 Amination...
 reductive; conjugation of streptococcal capsular saccharides
 Albumins, reactions...
 serum, human, as a carrier mol.; conjugation of streptococcal capsular
 saccharides
 Proteins...
 synthetic, multiple CD4+ epitopes, as a carrier mol.; conjugation of
 streptococcal capsular saccharides
 Toxoids...
 tetanus, as a carrier mol.; conjugation of streptococcal capsular
 saccharides
 CAS REGISTRY NUMBERS:
 7790-28-5 6066-82-6 59156-70-6 conjugation of streptococcal capsular
 saccharides
 7664-41-7 processes, conjugation of streptococcal capsular saccharides
 14798-03-9D salts, conjugation of streptococcal capsular saccharides
 15056-35-6D salts, salts; conjugation of streptococcal capsular
 saccharides

10/7/37 (Item 16 from file: 399)
 DIALOG(R)File 399:CA SEARCH(R)
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145209376 CA: 145(11)209376j PATENT
 Purification of streptococcal capsular polysaccharide
 INVENTOR(AUTHOR): Costantino, Paolo
 LOCATION: Italy
 ASSIGNEE: Chiron Srl
 PATENT: PCT International ; WO 200682527 A2 DATE: 20060810
 APPLICATION: WO 2006IB626 (20060201) *GB 20052096 (20050201)
 PAGES: 39pp. CODEN: PIXXD2 LANGUAGE: English
 PATENT CLASSIFICATIONS:
 IPCR/8 + Level Value Position Status Version Action Source Office:
 C08B-0037/00 A I F B 20060101 H EP
 C12P-0019/04 A I L B 20060101 H EP
 DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY;
 BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD;
 GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KM; KN; KP; KR; KZ; LC; LK;
 LR; LS; LT; LU; LV; LY; MA; MD; MG; MK; MN; MW; MX; MZ; NA; NG; NI; NO; NZ;
 OM; PG; PH; PL; PT; RO; RU; SC; SD; SE; SG; SK; SL; SM; SY; TJ; TM; TN; TR;
 TT; TZ; UA; UG; US; UZ; VC; VN; YU; ZA DESIGNATED REGIONAL: AT; BE; BG; CH
 ; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IS; IT; LT; LU; LV; MC;

NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG; BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM

SECTION:

CA216001 Fermentation and Bioindustrial Chemistry

CA233XXX Carbohydrates

CA244XXX Industrial Carbohydrates

IDENTIFIERS: streptococcal capsular polysaccharide purifn

DESCRIPTORS:

Extraction...

base; purification of streptococcal capsular polysaccharide

Polysaccharides, preparation...

capsular; purification of streptococcal capsular polysaccharide

Detergents...

cationic; purification of streptococcal capsular polysaccharide

Hydrolysis...

chemical; purification of streptococcal capsular polysaccharide

Hydrolysis...

enzymic; purification of streptococcal capsular polysaccharide

Filtration...

microfiltration; purification of streptococcal capsular polysaccharide

Streptococcus agalactiae... Capsule(microbial)... Cations...

Alcohols, processes... Precipitation(chemical)... Separation...

Centrifugation... Fermentation... Ultrafiltration... Solubilization...

Proteins... Nucleic acids... Vaccines...

purification of streptococcal capsular polysaccharide

Filtration...

tangential-flow filtration; purification of streptococcal capsular polysaccharide

CAS REGISTRY NUMBERS:

64-17-5 67-63-0 16397-91-4 22537-22-0 14127-61-8 10043-52-4

processes, purification of streptococcal capsular polysaccharide

55466-22-3 9012-33-3 9025-82-5 57-09-0 10549-76-5 purification of streptococcal capsular polysaccharide

10/7/38 (Item 17 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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143005815 CA: 143(1)5815a JOURNAL

Size determination of bacterial capsular oligosaccharides used to prepare conjugate vaccines against Neisseria meningitidis groups Y and W135

AUTHOR(S): Bardotti, Angela; Averani, Giovanni; Berti, Francesco; Berti, Stefania; Galli, Chiara; Giannini, Sara; Fabbri, Barbara; Proietti, Daniela; Ravenscroft, Neil; Ricci, Stefano

LOCATION: Chiron Vaccines, I-53100, Siena, Italy

JOURNAL: Vaccine (Vaccine) DATE: 2005 VOLUME: 23 NUMBER: 16 PAGES:

1887-1899 CODEN: VACCDE ISSN: 0264-410X PUBLISHER ITEM IDENTIFIER:

0264-410X(04)00790-X LANGUAGE: English PUBLISHER: Elsevier B.V.

SECTION:

CA215002 Immunochemistry

IDENTIFIERS: size detn bacteria capsule oligosaccharide Neisseria vaccine

DESCRIPTORS:

Polymerization...

average degree of; size determination of bacterial capsular oligosaccharides used

to prepare conjugate vaccines against Neisseria meningitidis groups Y and W135

Oligosaccharides, biological studies... Vaccines... Neisseria meningitidis

... Anion exchange chromatography...

size determination of bacterial capsular oligosaccharides used to prepare

conjugate vaccines against Neisseria meningitidis groups Y and W135

10/7/39 (Item 18 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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142461845 CA: 142(25)461845a JOURNAL

The concept of "tailor-made", protein-based, outer membrane vesicle vaccines against meningococcal disease

AUTHOR(S): Holst, Johan; Feiring, Berit; Naess, Lisbeth M.; Norheim, Gunnstein; Kristiansen, Paul; Hoiby, E. Arne; Bryn, Klaus; Oster, Philipp; Costantino, Paolo; Taha, Muhamed-Kheir; Alonso, Jean-Michel; Caugant, Dominique A.; Wedege, Elisabeth; Aaberge, Ingeborg S.; Rappuoli, Rino; Rosenqvist, Einar

LOCATION: Norwegian Institute of Public Health, Oslo, Norway

JOURNAL: Vaccine (Vaccine) DATE: 2005 VOLUME: 23 NUMBER: 17-18

PAGES: 2202-2205 CODEN: VACCDE ISSN: 0264-410X

PUBLISHER ITEM IDENTIFIER: 0264-410X(05)00063-0 LANGUAGE: English

PUBLISHER: Elsevier B.V.

SECTION:

CA215002 Immunochemistry

IDENTIFIERS: Neisseria meningitidis vaccine outer membrane vesicle

DESCRIPTORS:

Infection...

bacterial; concept of tailor-made protein-based outer membrane vesicle vaccines against meningococcal disease

Neisseria meningitidis... Vaccines... Human...

concept of tailor-made protein-based outer membrane vesicle vaccines against meningococcal disease

Cell wall...

outer membrane; concept of tailor-made protein-based outer membrane vesicle vaccines against meningococcal disease

Organelle...

vesicle; concept of tailor-made protein-based outer membrane vesicle vaccines against meningococcal disease

10/7/40 (Item 19 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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142372474 CA: 142(20)372474m PATENT

Acetylated meningococcal capsular oligosaccharides

INVENTOR(AUTHOR): Costantino, Paolo

LOCATION: Italy

ASSIGNEE: Chiron S.r.l.

PATENT: PCT International ; WO 200533148 A1 DATE: 20050414

APPLICATION: WO 2004IB3366 (20041004) *GB 200323103 (20031002)

PAGES: 42 pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

CLASS: C08B-037/00A; A61K-039/095B; A61K-031/715B

DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BW; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; EG; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA; MD; MG; MK; MN; MW; MX; MZ; NA; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RU; SC; SD; SE; SG; SK; SL; SY; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN; YU; ZA; ZM; ZW DESIGNATED REGIONAL: BW; GH; GM; KE; LS; MW; MZ; NA; SD; SL; SZ; TZ; UG; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM; AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IT; LU; MC; NL; PL; PT; RO; SE; SI; SK; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG

SECTION:

CA215002 Immunochemistry

IDENTIFIERS: acetylated capsular polysaccharide Neisseria vaccine

DESCRIPTORS:

Human...

acetylated sialate oligosaccharides of serogroups W135 and Y of
Neisseria meningitidis for vaccination

Polysaccharides, biological studies...

capsular, fragments, conjugates; for vaccination against serogroups
W135 and Y of Neisseria meningitidis

Proteins...

D, conjugates with acetylated sialate oligosaccharides; for vaccination
against serogroups W135 and Y of Neisseria meningitidis

Toxoids...

diphtheria, conjugates with acetylated sialate oligosaccharides; for
vaccination against serogroups W135 and Y of Neisseria meningitidis

Neisseria meningitidis...

group A; vaccination with acetylated sialate oligosaccharides of
serogroups W135 and Y of N. meningitidis and saccharide antigen from

Neisseria meningitidis...

group W-135; acetylated sialate oligosaccharide conjugates for
vaccination against

Neisseria meningitidis...

group Y; acetylated sialate oligosaccharide conjugates for vaccination
against

Antigens...

microbial; in combination vaccination with acetylated sialate
oligosaccharides of serogroups W135 and Y of Neisseria meningitidis

Vaccines...

of acetylated sialate oligosaccharides of serogroups W135 and Y of
Neisseria meningitidis

Acetyl group...

of Neisseria meningitidis capsular polysaccharide affects
immunogenicity

Toxoids...

tetanus, conjugates with acetylated sialate oligosaccharides; for
vaccination against serogroups W135 and Y of Neisseria meningitidis

Streptococcus pneumoniae... Hepatitis A virus... Hepatitis B virus...

Bordetella pertussis... Human poliovirus...

vaccination with acetylated sialate oligosaccharides of serogroups W135
and Y of Neisseria meningitidis and antigen from

Antibodies and Immunoglobulins...

vaccination with acetylated sialate oligosaccharides of serogroups W135
and Y of Neisseria meningitidis for elicitation of

Meningitis...

vaccination with acetylated sialate oligosaccharides of serogroups W135
and Y of Neisseria meningitidis for protection against

Sialooligosaccharides...

7-acetylated sialate- or 9-acetylated sialate-containing, conjugates; for
vaccination against serogroups W135 and Y of Neisseria meningitidis

CAS REGISTRY NUMBERS:

736884-44-9DP 849592-59-2DP acetyl derivs., carrier protein conjugates,
repeating unit; acetylated sialate oligosaccharides of serogroups W135
and Y of Neisseria meningitidis for vaccination

600173-37-3D conjugates with acetylated sialate oligosaccharides, for
vaccination against serogroups W135 and Y of Neisseria meningitidis

10/7/41 (Item 20 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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141189619 CA: 141(12)189619c PATENT

Injectable immunogenic composition comprising capsular saccharides from
Neisseria meningitidis B, A, C, W135 and Y as vaccines against multiple
meningococcal serogroups

INVENTOR(AUTHOR): Costantino, Paolo

LOCATION: Italy

ASSIGNEE: Chiron SRL

PATENT: PCT International ; WO 200467030 A2 DATE: 20040812

APPLICATION: WO 2004IB651 (20040130) *GB 20032217 (20030130) *GB

200323101 (20031002)

PAGES: 46 pp. CODEN: PIXXD2 LANGUAGE: English

PATENT CLASSIFICATIONS:

CLASS: A61K-039/095A; A61K-039/39B; C07K-014/22B; A61K-039/02B;
A61K-039/09B

DESIGNATED COUNTRIES: AE; AE; AG; AL; AL; AM; AM; AM; AT; AT; AU; AZ; AZ;
BA; BB; BG; BG; BR; BR; BW; BY; BY; BZ; BZ; CA; CH; CN; CN; CO; CO; CR; CR;
CU; CU; CZ; CZ; DE; DE; DK; DK; DM; DZ; EC; EC; EE; EE; EG; ES; ES; FI; FI;
GB; GD; GE; GE; GH; GM; HR; HR; HU; HU; ID; IL; IN; IS; JP; JP; KE; KE; KG;
KG; KP; KP; KR; KR; KZ; KZ; KZ; LC; LK; LR; LS; LS; LT; LU; LV; MA; MD;
MD; MG; MK; MN; MW; MX; MX; MZ; MZ; NA; NI

SECTION:

CA215002 Immunochemistry

CA263XXX Pharmaceuticals

IDENTIFIERS: Neisseria meningitidis A B C W135 Y capsular saccharide,
Haemophilus influenzae Streptococcus pneumoniae Neisseria meningitidis
meningococcal vaccine injection

DESCRIPTORS:

Immunostimulants...

adjuvants; injectable immunogenic composition comprising capsular
saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
against bacterial meningitis

Meningitis...

bacterial; injectable immunogenic composition comprising capsular
saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
against bacterial meningitis

Polysaccharides, biological studies...

capsular; injectable immunogenic composition comprising capsular saccharides
from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
bacterial meningitis

Drug delivery systems...

carriers; injectable immunogenic composition comprising capsular saccharides
from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
bacterial meningitis

Proteins... Antigens...

conjugates; injectable immunogenic composition comprising capsular
saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
against bacterial meningitis

Proteins...

D; injectable immunogenic composition comprising capsular saccharides from
Neisseria meningitidis B, A, C, W135 and Y as vaccines against
bacterial meningitis

Toxins...

diphtheria, conjugates; injectable immunogenic composition comprising
capsular saccharides from Neisseria meningitidis B, A, C, W135 and Y as
vaccines against bacterial meningitis

Toxoids...

diphtheria; injectable immunogenic composition comprising capsular
saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
against bacterial meningitis

Drug delivery systems...

freeze-dried; injectable immunogenic composition comprising capsular
saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines

against bacterial meningitis
 Neisseria meningitidis...
 group A; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Neisseria meningitidis...
 group B; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Neisseria meningitidis...
 group C; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Neisseria meningitidis...
 group W-135; injectable immunogenic composition comprising capsular
 saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
 against bacterial meningitis
 Neisseria meningitidis...
 group Y; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Vaccines... Eubacteria... Neisseria meningitidis... Streptococcus
 pneumoniae... Oligosaccharides, biological studies... Hydroxyl group...
 Protective groups... Antibodies and Immunoglobulins... Antibacterial agents
 ... Fusion proteins (chimeric proteins)... Test kits... Protein sequences...
 Human...
 injectable immunogenic composition comprising capsular saccharides from
 Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Drug delivery systems...
 injections, i.m.; injectable immunogenic composition comprising capsular
 saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
 against bacterial meningitis
 Drug delivery systems...
 injections, s.c.; injectable immunogenic composition comprising capsular
 saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
 against bacterial meningitis
 Drug delivery systems...
 injections; injectable immunogenic composition comprising capsular
 saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines
 against bacterial meningitis
 Drug delivery systems...
 liqs.; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Antigens...
 LytA; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Antigens...
 LytB; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Antigens...
 LytC; injectable immunogenic composition comprising capsular saccharides
 from Neisseria meningitidis B, A, C, W135 and Y as vaccines against
 bacterial meningitis
 Antigens...
 NadA (Neisserial adhesin A); injectable immunogenic composition comprising
 capsular saccharides from Neisseria meningitidis B, A, C, W135 and Y as
 vaccines against bacterial meningitis
 Antigens...

phtA; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

phtB; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

phtD; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

phtE; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

SpsA; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

Sp101; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

Sp125; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

Sp128; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

Sp130; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Toxoids...

tetanus; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Haemophilus influenzae...

type b; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

287; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

741; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

936; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

Antigens...

953; injectable immunogenic composition comprising capsular saccharides from *Neisseria meningitidis* B, A, C, W135 and Y as vaccines against bacterial meningitis

CAS REGISTRY NUMBERS:

738308-30-0P 738308-31-1P 738308-32-2P 738308-33-3P 738308-34-4P

738308-35-5P 738308-36-6P 738308-37-7P 738308-38-8P 738308-39-9P

738308-40-2P amino acid sequence; injectable immunogenic composition comprising capsular saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines against bacterial meningitis
7429-90-5D salts, injectable immunogenic composition comprising capsular saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines against bacterial meningitis
219724-66-0 unclaimed sequence; injectable immunogenic composition comprising capsular saccharides from Neisseria meningitidis B, A, C, W135 and Y as vaccines against multiple meningococcal serogroups

10/7/42 (Item 21 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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141052579 CA: 141(4)52579v JOURNAL
Modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the trimethyl chitosan delivery system
AUTHOR(S): Baudner, Barbara C.; Morandi, Maurizio; Giuliani, Marzia M.; Verhoef, J. Coos; Junginger, Hans E.; Costantino, Paolo; Rappuoli, Rino; Del Giudice, Giuseppe
LOCATION: Research Center, Chiron Srl, 53100, Siena, Italy
JOURNAL: J. Infect. Dis. (Journal of Infectious Diseases) DATE: 2004
VOLUME: 189 NUMBER: 5 PAGES: 828-832 CODEN: JIDIAQ ISSN: 0022-1899
LANGUAGE: English PUBLISHER: University of Chicago Press
SECTION:
CA215003 Immunochemistry
IDENTIFIERS: vaccine Neisseria LTK63 adjuvant trimethyl chitosan delivery system
DESCRIPTORS:
Immunostimulants...
adjuvants; modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
Vaccines...
conjugate; modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
Neisseria meningitidis...
group C; modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
Antibodies and Immunoglobulins...
IgG; modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
Drug delivery systems...
modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
Immunization...
vaccination; modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
CAS REGISTRY NUMBERS:
226416-68-8 modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system
9012-76-4D tri-Me derivs., modulation of immune response to group C meningococcal conjugate vaccine given intranasally to mice together with the LTK63 mucosal adjuvant and the tri-Me chitosan delivery system

10/7/43 (Item 22 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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140240996 CA: 140(15)240996g PATENT
Modified saccharides and their protein conjugates
INVENTOR(AUTHOR): Giannozzi, Aldo; Averani, Giovanni; Norelli, Francesco;
Costantino, Paolo
LOCATION: Italy
ASSIGNEE: Chiron S.r.l.
PATENT: PCT International ; WO 200419992 A1 DATE: 20040311
APPLICATION: WO 2003IB4194 (20030901) *GB 200220198 (20020830)
PAGES: 30 pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: A61K-047/48A; C07H-013/12B; A61K-031/715B
DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ;
CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH;
GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU;
LV; MA; MD; MG; MK; MN; MW; MX; MZ; NI; NO; NZ; OM; PG; PH; PL; PT; RO; RU;
SC; SD; SE; SG; SK; SL; SY; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN;
YU; ZA; ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU DESIGNATED REGIONAL: GH; GM; KE
; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZM; ZW; AT; BE; BG; CH; CY; CZ; DE; DK;
EE; ES; FI; FR; GB; GR; HU; IE; IT; LU; MC; NL; PT; RO; SE; SI; SK; TR; BF;
BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG
SECTION:
CA263003 Pharmaceuticals
CA215XXX Immunochemistry
CA233XXX Carbohydrates
CA234XXX Amino Acids, Peptides, and Proteins
IDENTIFIERS: capsular oligosaccharide linker protein conjugate immunogen,
Neisseria capsular polysaccharide protein conjugate meningitis
DESCRIPTORS:
Immunostimulants...
adjuvants; preparation of saccharide-protein conjugates with improved
immunogenicity
Meningitis...
bacterial; preparation of saccharide-protein conjugates with improved
immunogenicity
Oligosaccharides,biological studies... Polysaccharides,biological studies
...
capsular, conjugates with proteins; preparation of saccharide-protein
conjugates with improved immunogenicity
Proteins... Toxins... Toxoids...
conjugates with capsular saccharides; preparation of saccharide-protein
conjugates with improved immunogenicity
Proteins...
CRM197, conjugates with capsular saccharides; preparation of
saccharide-protein conjugates with improved immunogenicity
Toxins... Toxoids...
diphtheria, conjugates with capsular saccharides; preparation of
saccharide-protein conjugates with improved immunogenicity
Neisseria meningitidis...
group A; preparation of saccharide-protein conjugates with improved
immunogenicity
Vaccines... Antigens...
preparation of saccharide-protein conjugates with improved immunogenicity
Amination...
reductive; preparation of saccharide-protein conjugates with improved
immunogenicity
Drug delivery systems...

saccharide-protein conjugates with improved immunogenicity
CAS REGISTRY NUMBERS:
530-62-1 41864-22-6 68985-05-7 102-09-0 506-68-3 75-44-5 32315-10-9
bifunctional reagent; preparation of saccharide-protein conjugates with
improved immunogenicity
375345-20-3 preparation of saccharide-protein conjugates with improved
immunogenicity
25895-60-7 reducing agent; preparation of saccharide-protein conjugates with
improved immunogenicity

10/7/44 (Item 23 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2011 American Chemical Society. All rts. reserv.

140109759 CA: 140(8)109759q JOURNAL
Water accessibility, aggregation, and motional features of
polysaccharide-protein conjugate vaccines
AUTHOR(S): Berti, Francesco; Costantino, Paolo; Fragai, Marco; Luchinat,
Claudio
LOCATION: IRIS, Chiron SPA, 53100, Siena, Italy
JOURNAL: Biophys. J. (Biophysical Journal) DATE: 2004 VOLUME: 86
NUMBER: 1, Pt. 1 PAGES: 3-9 CODEN: BIOJAU ISSN: 0006-3495 LANGUAGE:
English PUBLISHER: Biophysical Society
SECTION:
CA215002 Immunochemistry
IDENTIFIERS: polysaccharide protein conjugate vaccine water hydrodynamics
DESCRIPTORS:
Vaccines...
conjugate; water accessibility, aggregation, and motional features of
polysaccharide-protein conjugate vaccines
Aggregation... Hydration, chemical... Molecular dynamics...
Polysaccharides, biological studies... Proteins...
water accessibility, aggregation, and motional features of
polysaccharide-protein conjugate vaccines

10/7/45 (Item 24 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2011 American Chemical Society. All rts. reserv.

139275732 CA: 139(18)275732z PATENT
Modified polysaccharide-protein conjugates having improved stability in
water for use as vaccines
INVENTOR(AUTHOR): Costantino, Paolo; Berti, Francesco; Norelli, Francesco
; Bartoloni, Antonella
LOCATION: Italy
ASSIGNEE: Chiron S.r.l.
PATENT: PCT International ; WO 200380678 A1 DATE: 20031002
APPLICATION: WO 2003IB1436 (20030326) *GB 20027117 (20020326) *GB
200220195 (20020830) *GB 200229494 (20021218) *GB 200230163 (20021224)
PAGES: 58 pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: C08B-037/00A; A61K-039/385B; A61K-039/095B
DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ;
CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH;
GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU;
LV; MA; MD; MG; MK; MN; MW; MX; MZ; NI; NO; NZ; OM; PH; PL; PT; RO; RU; SC;
SD; SE; SG; SK; SL; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VC; VN; YU; ZA;
ZM; ZW; AM; AZ; BY; KG; KZ; MD; RU; TJ; TM DESIGNATED REGIONAL: GH; GM; KE
; LS; MW; MZ; SD; SL; SZ; TZ; UG; ZM; ZW; AT; BE; BG; CH; CY; CZ; DE; DK;
EE; ES; FI; FR; GB; GR; HU; IE; IT; LU; MC; NL; PT; RO; SE; SI; SK; TR; BF;

BJ; CF; CG; CI; CM; GA; GN; GQ; GW; ML; MR; NE; SN; TD; TG

SECTION:

CA215002 Immunochemistry

CA209XXX Biochemical Methods

CA263XXX Pharmaceuticals

IDENTIFIERS: Neisseria meningitidis capsular saccharide oligosaccharide polysaccharide protein conjugate vaccine

DESCRIPTORS:

Immunostimulants...

adjuvants; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Solvents...

aprotic; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Toxins... Meningitis...

bacterial; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Reagents... Crosslinking agents...

bifunctional; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Functional groups...

blocking; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Drug delivery systems...

carriers; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Proteins... Monosaccharides... Oligosaccharides, biological studies...

Polysaccharides, biological studies...

conjugates; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Toxins...

diphtheria; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Functional groups...

electron-withdrawing; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Stability...

enhancement; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Neisseria meningitidis...

group A; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Neisseria meningitidis...

group C; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Neisseria meningitidis...

group W-135; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Neisseria meningitidis...

group Y; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Glycosides...

linkage; modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Monosaccharides... Capsule(microbial)... Oligosaccharides, biological studies... Polysaccharides, biological studies... Hydroxyl group... Amino group... Bacteria(Eubacteria)... Vaccines... Antibodies... Mammalia... Amines, biological studies... Glycoconjugates...

modified polysaccharide-protein conjugates having improved stability in water for use as vaccines

Functional groups...

nitrogen-protecting; modified polysaccharide-protein conjugates having

improved stability in water for use as vaccines
Solvents...
organic; modified polysaccharide-protein conjugates having improved
stability in water for use as vaccines
Functional groups...
phosphodiester, bond; modified polysaccharide-protein conjugates having
improved stability in water for use as vaccines
Carbohydrates, biological studies...
sugar phosphates; modified polysaccharide-protein conjugates having
improved stability in water for use as vaccines
CAS REGISTRY NUMBERS:
67-68-5 68-12-2 75-12-7 680-31-9 biological studies, modified
polysaccharide-protein conjugates having improved stability in water
for use as vaccines
1608-26-0 7226-23-5 127-19-5 530-62-1 41864-22-6 23814-12-2 102-09-0
506-68-3 75-44-5 32315-10-9 600173-37-3 7784-30-7 modified
polysaccharide-protein conjugates having improved stability in water
for use as vaccines

10/7/46 (Item 25 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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138121627 CA: 138(9)121627m PATENT
Purification of bacterial capsular polysaccharide for use in combination
vaccines
INVENTOR(AUTHOR): Costantino, Paolo
LOCATION: Italy
ASSIGNEE: Chiron S.P.A.
PATENT: PCT International ; WO 200307985 A2 DATE: 20030130
APPLICATION: WO 2002IB3191 (20020620) *GB 200115176 (20010620)
PAGES: 49 pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: A61K-039/02A; A61K-039/095B; A61K-039/385B; A61P-031/04B
DESIGNATED COUNTRIES: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ;
CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH;
GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU;
LV; MA; MD; MG; MK; MN; MW; MX; MZ; NO; NZ; OM; PH; PL; PT; RO; RU; SD; SE;
SG; SI; SK; SL; TJ; TM; TN; TR; TT; TZ; UA; UG; US; UZ; VN; YU; ZA; ZM; ZW;
AM; AZ; BY; KG; KZ; MD; RU; TJ; TM DESIGNATED REGIONAL: GH; GM; KE; LS; MW
; MZ; SD; SL; SZ; TZ; UG; ZM; ZW; AT; BE; CH; CY; DE; DK; ES; FI; FR; GB;
GR; IE; IT; LU; MC; NL; PT; SE; TR; BF; BJ; CF; CG; CI; CM; GA; GN; GQ; GW;
ML; MR; NE; SN; TD; TG

SECTION:
CA215002 Immunochemistry
CA209XXX Biochemical Methods
CA263XXX Pharmaceuticals
IDENTIFIERS: Neisseria meningitidis capsular polysaccharide purifn
solubilization protein conjugate vaccine
DESCRIPTORS:
Immunostimulants...
adjuvants; purification of Neisseria meningitidis capsular polysaccharide
for use in combination vaccines
Polysaccharides, biological studies...
capsular; purification of Neisseria meningitidis capsular polysaccharide for
use in combination vaccines
Drug delivery systems...
carriers; purification of Neisseria meningitidis capsular polysaccharide for
use in combination vaccines
Proteins...
conjugates; purification of Neisseria meningitidis capsular polysaccharide

for use in combination vaccines

Toxoids...

diphtheria, CRM197; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Drug delivery systems...

freeze-dried; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Neisseria meningitidis...

group A; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Neisseria meningitidis...

group B; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Neisseria meningitidis...

group C; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Neisseria meningitidis...

group W-135; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Neisseria meningitidis...

group Y; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Buffers...

histidine; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Drug delivery systems...

liqs.; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Carbohydrates, biological studies...

MenA and MenC; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Physiological saline solutions...

phosphate-buffered; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Bacteria(Eubacteria)... Solubilization... Precipitation(chemical)...

Neisseria meningitidis... Alcohols, biological studies... Ultrafiltration...

Haemophilus influenzae... Streptococcus pneumoniae... Hydrolysis...

Oligosaccharides, biological studies... Carriers... Biochemical molecules...

Antigens... Vaccines... Solvents...

purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

Filtration...

size; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

CAS REGISTRY NUMBERS:

7440-44-0 biological studies, activated; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

71-00-1 biological studies, buffer; purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

64-17-5 21645-51-2 7732-18-5 biological studies, purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

57-09-0 7784-30-7 purification of Neisseria meningitidis capsular polysaccharide for use in combination vaccines

10/7/47 (Item 26 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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137045615 CA: 137(4)45615t JOURNAL

Isolation of oligosaccharides from a partial-acid hydrolysate of pneumococcal type 3 polysaccharide for use in conjugate vaccines

AUTHOR(S): Lefeber, Dirk J.; Gutierrez Gallego, Ricardo; Grun, Christian H.; Proietti, Daniela; D'Ascenzi, Sandro; Costantino, Paolo; Kamerling, Johannis P.; Vliegenthart, Johannes F. G.

LOCATION: Department of Bio-Organic Chemistry, Utrecht University, Bijvoet Center, 3508 TB, Utrecht, Neth.

JOURNAL: Carbohydr. Res. (Carbohydrate Research) DATE: 2002 VOLUME: 337

NUMBER: 9 PAGES: 819-825 CODEN: CRBRAT ISSN: 0008-6215

PUBLISHER ITEM IDENTIFIER: 0008-6215(02)00059-9 LANGUAGE: English

PUBLISHER: Elsevier Science Ltd.

SECTION:

CA215001 Immunochemistry

CA209XXX Biochemical Methods

CA233XXX Carbohydrates

IDENTIFIERS: Streptococcus carbohydrate oligosaccharide isolation
conjugate vaccine

DESCRIPTORS:

Hydrolysis...

acid; oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide for use in neoglycoprotein vaccines

Polysaccharides, biological studies...

capsular; oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide for use in neoglycoprotein vaccines

Glycoproteins...

neoglycoproteins; oligosaccharide isolation from a partial-acid
hydrolyzate of pneumococcal type 3 polysaccharide for use in
neoglycoprotein vaccines

Oligosaccharides, biological studies... Vaccines...

oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide for use in neoglycoprotein vaccines

Ion exchange chromatography...

oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide fractionated by

Anion exchange chromatography... pH...

oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide purified by

Amperometry...

pulsed; oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide purified by

Streptococcus pneumoniae...

type 3; oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide for use in neoglycoprotein vaccines

CAS REGISTRY NUMBERS:

158129-72-7 oligosaccharide isolation from a partial-acid hydrolyzate of
pneumococcal type 3 polysaccharide purified by

184867-28-5 repeating unit; oligosaccharides containing one to seven repeating
units of

10/7/48 (Item 27 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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132034363 CA: 132(4)34363e JOURNAL

Size determination of bacterial capsular oligosaccharides used to prepare
conjugate vaccines

AUTHOR(S): Ravenscroft, Neil; Averani, Giovanni; Bartoloni, Antonella;
Berti, Stefania; Bigio, Massimo; Carinci, Valeria; Costantino, Paolo;
D'Ascenzi, Sandro; Giannozzi, Aldo; Norelli, Francesco; Pennatini, Carlo;
Proietti, Daniela; Ceccarini, Costante; Cescutti, Paola

LOCATION: Chiron Vaccines SpA, I-53100, Siena, Italy

JOURNAL: Vaccine DATE: 1999 VOLUME: 17 NUMBER: 22 PAGES: 2802-2816

CODEN: VACCDE ISSN: 0264-410X PUBLISHER ITEM IDENTIFIER:

0264-410X(99)00092-4 LANGUAGE: English PUBLISHER: Elsevier Science Ltd.

SECTION:

CA215001 Immunochemistry

IDENTIFIERS: bacteria capsule oligosaccharide size detn colorimetric
assay vaccine

DESCRIPTORS:

Polysaccharides, biological studies...

capsular; colorimetric assays for determination of the size of bacterial

capsular oligosaccharides used to prepare conjugate vaccines

Bacteria(Eubacteria)... Neisseria meningitidis...

Oligosaccharides, biological studies... Vaccines...

colorimetric assays for determination of the size of bacterial capsular

oligosaccharides used to prepare conjugate vaccines

Haemophilus influenzae...

type b; colorimetric assays for determination of the size of bacterial capsular

oligosaccharides used to prepare conjugate vaccines

10/7/49 (Item 28 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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131078310 CA: 131(6)78310u JOURNAL

Size fractionation of bacterial capsular polysaccharides for their use in
conjugate vaccines

AUTHOR(S): Costantino, Paolo; Norelli, Francesco; Giannozzi, Aldo;
D'Ascenzi, Sandro; Bartoloni, Antonella; Kaur, Surinder; Tang, Dazhi; Seid,
Robert; Viti, Stefano; Paffetti, Roberto; Bigio, Massimo; Pennatini, Carlo;
Averani, Giovanni; Guarnieri, Valentina; Gallo, Eugenia; Ravenscroft, Neil;
Lazzeroni, Carla; Rappuoli, Rino; Ceccarini, Costante

LOCATION: Chiron Vaccines SpA, 53100, Siena, Italy

JOURNAL: Vaccine DATE: 1999 VOLUME: 17 NUMBER: 9-10 PAGES: 1251-1263

CODEN: VACCDE ISSN: 0264-410X PUBLISHER ITEM IDENTIFIER:

0264-410X(98)00348-X LANGUAGE: English PUBLISHER: Elsevier Science Ltd.

SECTION:

CA263006 Pharmaceuticals

CA215XXX Immunochemistry

IDENTIFIERS: bacteria capsule polysaccharide antigen fractionation
vaccine

DESCRIPTORS:

Vaccines...

conjugate; size fractionation of bacterial capsular polysaccharides for
use in conjugate vaccines

Neisseria meningitidis...

groups A and C; size fractionation of bacterial capsular

polysaccharides for use in conjugate vaccines

Capsule(microbial)... Polysaccharides, biological studies...

size fractionation of bacterial capsular polysaccharides for use in
conjugate vaccines

Haemophilus influenzae...

type b; size fractionation of bacterial capsular polysaccharides for
use in conjugate vaccines

10/7/50 (Item 29 from file: 399)

DIALOG(R)File 399:CA SEARCH(R)

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130050998 CA: 130(5)50998e JOURNAL

A competitive enzyme-linked immunosorbent assay for measuring the levels
of serum antibody to Haemophilus influenzae type b

AUTHOR(S): Mariani, Massimo; Luzzi, Enrico; Proietti, Daniela; Mancianti,

Silvia; Casini, Daniele; Costantino, Paolo; Van Gageldonk, Pieter; Berbers, Guy
LOCATION: Laboratorio di Immunochimica e Sierologia Sperimentale,
Dipartimento Immunologia, Centro Ricerche, I-53100, Siena, Italy
JOURNAL: Clin. Diagn. Laboratory Immunol. DATE: 1998 VOLUME: 5 NUMBER: 5
PAGES: 667-674 CODEN: CDIMEN ISSN: 1071-412X LANGUAGE: English
PUBLISHER: American Society for Microbiology
SECTION:
CA215001 Immunochemistry
IDENTIFIERS: ELISA antibody Haemophilus capsular polysaccharide
DESCRIPTORS:
Blood analysis... Capsular polysaccharides...
competitive ELISA for measuring human serum antibody to Haemophilus
influenzae type b capsular polysaccharide
Vaccines...
competitive ELISA for measuring human serum antibody to Haemophilus
influenzae type b capsular polysaccharide in relation to
Antibodies... ELISA(immunosorbent assay)...
competitive ELISA for measuring serum antibody to Haemophilus
influenzae type b capsular polysaccharide
Serum albumin...
conjugates, with Haemophilus capsular polysaccharide; for competitive
ELISA measuring human serum antibody to Haemophilus influenzae type b
Capsular polysaccharides...
conjugates, with human serum albumin; for competitive ELISA measuring
human serum antibody to Haemophilus influenzae type b
Microtiter plates...
precoated; with HSA-polysaccharide conjugate for competitive ELISA
measuring human serum antibody to Haemophilus influenzae type b
Haemophilus influenzae...
type b; competitive ELISA for measuring human serum antibody to
Haemophilus influenzae type b capsular polysaccharide

10/7/51 (Item 30 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
(c) 2011 American Chemical Society. All rts. reserv.

125056224 CA: 125(5)56224t PATENT
Combined meningitis vaccine
INVENTOR(AUTHOR): Ceccarini, Costante; Costantino, Paolo; D'Ascenzi,
Sandro; Norelli, Francesco; Giannozzi, Aldo
LOCATION: Italy
ASSIGNEE: Biocine S.P.A.
PATENT: PCT International ; WO 9614086 A1 DATE: 960517
APPLICATION: WO 95IB1006 (951102) *GB 9422096 (941102)
PAGES: 32 pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: A61K-039/02A; A61K-039/095B; A61K-039/102B
DESIGNATED COUNTRIES: CA; JP; US DESIGNATED REGIONAL: AT; BE; CH; DE; DK
; ES; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE
SECTION:
CA215002 Immunochemistry
IDENTIFIERS: meningitis vaccine Hib MenC oligosaccharide conjugate, MenB
oligosaccharide conjugate meningitis vaccine, DTP vaccine priming
meningitis Hib MenC
DESCRIPTORS:
Haemophilus influenzae, type b... Meningitis... Vaccines...
combined vaccine for bacterial meningitis comprises Hib, MenC and MenB
oligosaccharide conjugates
Diphtheria... Tetanus... Whooping cough...
DTP vaccine; combined vaccine for bacterial meningitis comprises Hib,

MenC and MenB oligosaccharide conjugates
Oligosaccharides, complexes...
of Haemophilus influenzae type B and Neisseria meningitidis serotype B
and C; combined vaccine for bacterial meningitis comprises Hib, MenC
and MenB oligosaccharide conjugates
Neisseria meningitidis...
serotype B and C; combined vaccine for bacterial meningitis comprises
Hib, MenC and MenB oligosaccharide conjugates

10/7/52 (Item 31 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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123065627 CA: 123(6)65627n JOURNAL
Immunogenicity of meningococcal B polysaccharide conjugated to tetanus
toxoid or CRM197 via adipic acid dihydrazide
AUTHOR(S): Bartoloni, Antonella; Norelli, Francesco; Ceccarini, Costante;
Rappuoli, Rino; Costantino, Paolo
LOCATION: Biocine Research Center, IRIS, 53100, Siena, Italy
JOURNAL: Vaccine DATE: 1995 VOLUME: 13 NUMBER: 5 PAGES: 463-70
CODEN: VACCDE ISSN: 0264-410X LANGUAGE: English
SECTION:
CA263003 Pharmaceuticals
CA215XXX Immunochemistry
IDENTIFIERS: vaccine Neisseria polysaccharide carrier protein
DESCRIPTORS:
Toxoids, tetanus...
conjugates; immunogenicity of meningococcal B polysaccharide conjugated
to tetanus toxoid or CRM197 via adipic acid dihydrazide
Neisseria meningitidis, group B... Polysaccharides, conjugates, biological
studies... Proteins, specific or class, CRM 197, conjugates...
Toxins, diphtheria... Vaccines...
immunogenicity of meningococcal B polysaccharide conjugated to tetanus
toxoid or CRM197 via adipic acid dihydrazide
CAS REGISTRY NUMBERS:
1071-93-8 immunogenicity of meningococcal B polysaccharide conjugated to
tetanus toxoid or CRM197 via adipic acid dihydrazide

10/7/53 (Item 32 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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119269016 CA: 119(25)269016q PATENT
Conjugates formed from heat-shock proteins and oligo- or polysaccharides
for vaccine against bacterial infection
INVENTOR(AUTHOR): Rappuoli, Rino; Costantino, Paolo; Viti, Stefano;
Norelli, Francesco
LOCATION: Italy
ASSIGNEE: Biocine Sclavo SPA
PATENT: PCT International ; WO 9317712 A2 DATE: 930916
APPLICATION: WO 93EP516 (930308) *IT 92FI58 (920306)
PAGES: 69 pp. CODEN: PIXXD2 LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: A61K-047/48A; C07K-015/00B
DESIGNATED COUNTRIES: AT; AU; BB; BG; BR; CA; CH; CZ; DE; DK; ES; FI; GB;
HU; JP; KP; KR; LK; LU; MG; MN; MW; NL; NO; NZ; PL; PT; RO; RU; SD; SE; SK;
UA; US DESIGNATED REGIONAL: AT; BE; CH; DE; DK; ES; FR; GB; GR; IE; IT; LU
; MC; NL; PT; SE; BF; BJ; CF; CG; CI; CM; GA; GN; ML; MR; SN; TD; TG
SECTION:
CA215002 Immunochemistry

IDENTIFIERS: heat shock protein oligosaccharide conjugate vaccine,
polysaccharide heat shock protein conjugate vaccine, Helicobacter heat
shock protein DNA cloning, sequence Helicobacter heat shock protein

DESCRIPTORS:

Vaccines...

against bacterial infection, conjugates of heat-shock proteins with
oligo- or polysaccharides for

Deoxyribonucleic acid sequences... Protein sequences...

for heat-shock protein of Helicobacter pylori

Campylobacter pyloridis...

heat-shock protein of, conjugates with oligo- or polysaccharides, for
vaccines against bacterial infection

Proteins, specific or class, heat-shock...

hspR65, conjugates with oligo- or polysaccharides, for vaccines against
bacterial infection

Proteins, specific or class, heat-shock...

hspR70, conjugates with oligo- or polysaccharides, for vaccines against
bacterial infection

Neisseria meningitidis, group C...

oligosaccharides of, conjugates with heat-shock proteins, for vaccines
against bacterial infection

Plasmid and Episome...

pHp60G2 and pHp60G5, heat-shock protein of Helicobacter pylori in
relation to

Oligosaccharides, conjugates... Polysaccharides, conjugates, compounds...

with heat-shock proteins, for vaccines against bacterial infection

Proteins, specific or class, heat-shock, complexes...

with oligo- or polysaccharides, for vaccines against bacterial
infection

CAS REGISTRY NUMBERS:

151441-76-8 amino acid sequence of and cloning of DNA for, oligo- or
polysaccharide conjugates with heat-shock proteins for vaccines in
relation to

9026-28-2D heat-shock protein fusion products, of phage MS2, with
Helicobacter pylori heat-shock protein

151243-14-0 nucleotide sequence of and cloning of, oligo- or
polysaccharide conjugates with heat-shock proteins for vaccines in
relation to

10/7/54 (Item 33 from file: 399)

DIALOG(R) File 399:CA SEARCH(R)

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117210275 CA: 117(21)210275d JOURNAL

Mycobacterial heat-shock proteins as carrier molecules. II: The use of
the 70-kDa mycobacterial heat-shock protein as carrier for conjugated
vaccines can circumvent the need for adjuvants and Bacillus Calmette
Guerin priming

AUTHOR(S): Barrios, Christy; Lussow, Alexander R.; Van Embden, Jan; Van
der Zee, Ruurd; Rappuoli, Rino; Costantino, Paolo; Louis, Jacques A.;
Lambert, Paul Henri; Del Giudice, Giuseppe

LOCATION: World Health Organ. Immunol. Res. Training Cent., University Geneva,
CH-1211, Geneva, Switz.

JOURNAL: Eur. J. Immunol. DATE: 1992 VOLUME: 22 NUMBER: 6 PAGES:

1365-72 CODEN: EJIMAF ISSN: 0014-2980 LANGUAGE: English

SECTION:

CA215002 Immunochemistry

IDENTIFIERS: Mycobacterium heat shock protein vaccine carrier

DESCRIPTORS:

Immunostimulants, adjuvants...

antibody formation to vaccines conjugated to mycobacterial heat-shock

protein carrier after immunization in relation to
 Polysaccharides,biological studies...
 capsular, of Neisseria meningitidis, mycobacterial heat-shock protein
 conjugates immunization with, antibody formation induction by, immune
 adjuvants and BCG priming in relation to
 Plasmodium falciparum...
 circumsporozoite antigen of, peptide from, mycobacterial heat-shock
 protein conjugates, immunization with, antibody formation after, immune
 adjuvants and BCG priming in relation to
 Proteins,specific or class, hsp 70...
 conjugates, mycobacterial, with vaccines, antibodies to, formation of,
 immune adjuvants and BCG priming in relation to
 Mycobacterium tuberculosis...
 heat-shock protein 70 from, as immunostimulatory vaccine carrier
 Lymphocyte,T-cell...
 in antibody formation to vaccines conjugated to mycobacterial
 heat-shock protein carrier
 Vaccines...
 oligosaccharides and peptide conjugates with mycobacterial heat-shock
 protein carrier in relation to
 Neisseria meningitidis...
 oligosaccharides from, mycobacterial heat-shock protein conjugates,
 immunization with, antibody formation induction by, immune adjuvants
 and BCG priming in relation to
 Proteins,specific or class, hsp 65...
 preimmunization with, antibody formation to vaccines conjugated to
 mycobacterial heat-shock protein carrier enhancement by
 Antigens,CS (circumsporozoite)...
 synthetic peptide from, mycobacterial heat-shock protein conjugates,
 immunization with, antibody formation induction by, immune adjuvants
 and BCG priming in relation to
 Antibodies...
 to vaccines conjugated to mycobacterial heat-shock protein, formation
 of, immune adjuvants and BCG priming in relation to
 Oligosaccharides,conjugates... Peptides,conjugates,compounds...
 with heat-shock protein 70 from Mycobacterium, immunostimulation by,
 vaccines in relation to
 CAS REGISTRY NUMBERS:
 143180-71-6D mycobacterial heat-shock protein conjugates, immunization
 with, antibody formation induction by, immune adjuvants and BCG priming
 in relation to

10/7/55 (Item 34 from file: 399)
 DIALOG(R)File 399:CA SEARCH(R)
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117189760 CA: 117(19)189760w JOURNAL
 Development and phase 1 clinical testing of a conjugate vaccine against
 meningococcus A and C
 AUTHOR(S): Costantino, Paolo; Viti, Stefano; Podda, Audino; Velmonte,
 Melecia Antonio; Nencioni, Luciano; Rappuoli, Rino
 LOCATION: Sclavo Res. Dev. Vaccines, 53100, Siena, Italy
 JOURNAL: Vaccine DATE: 1992 VOLUME: 10 NUMBER: 10 PAGES: 691-8
 CODEN: VACCDE ISSN: 0264-410X LANGUAGE: English
 SECTION:
 CA215002 Immunochemistry
 CA263XXX Pharmaceuticals
 IDENTIFIERS: meningococcus vaccine
 DESCRIPTORS:
 Vaccines...
 to meningococcus

Neisseria meningitidis...
vaccine for

10/7/56 (Item 35 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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106125868 CA: 106(16)125868c PATENT
Preparation of glycoprotein conjugates having trivalent immunogenic activity
as vaccines against bacterial infections
INVENTOR(AUTHOR): Porro, Massimo; Costantino, Paolo
LOCATION: Italy
ASSIGNEE: Sclavo S.p.A.
PATENT: European Pat. Appl. ; EP 208375 A2 DATE: 870114
APPLICATION: EP 86201160 (860702) *IT 8521451 (850705)
PAGES: 12 pp. CODEN: EPXXDW LANGUAGE: English
PATENT CLASSIFICATIONS:
CLASS: A61K-039/116A; A61K-039/385B; C07K-015/14B
DESIGNATED COUNTRIES: AT; BE; CH; DE; FR; GB; LI; LU; NL; SE
SECTION:
CA263003 Pharmaceuticals
IDENTIFIERS: glycoprotein vaccine gram pos neg bacteria
DESCRIPTORS:
Vaccines...
against gram-pos. and gram-neg. bacterial infections, trivalent
glycoprotein antigen as
Polysaccharides, biological studies...
capsular, of gram-pos. and gram-neg. bacteria, in trivalent
glycoprotein antigen preparation as vaccine against bacterial infection
Toxins, pertussis... Toxoids, tetanus...
conjugates with haptens, preparation of, as vaccine against gram-pos. and
gram-neg. bacterial infection
Haptens...
conjugates with proteins, preparation of, as vaccine against gram-pos. and
gram-neg. bacterial infection
Glycoproteins, biological studies...
immunogenic, as vaccine against gram-pos. and gram-neg. bacterial
infection
Escherichia coli... Haemophilus influenzae... Neisseria meningitidis...
Pseudomonas aeruginosa... Streptococcus pneumoniae...
Streptococcus, β -hemolytic...
oligosaccharidic hapten derived from capsular polysaccharide of, in
trivalent glycoprotein antigen preparation as vaccine against bacterial
infections
Bacteria, gram-neg.... Bacteria, gram-pos....
oligosaccharidic haptens derived from capsular polysaccharides of, in
trivalent glycoprotein antigen preparation as vaccine against bacterial
infection
Infection...
vaccines against gram-pos. and gram-neg. bacterial, trivalent
glycoprotein antigens as
Proteins, specific or class, CRM 197, conjugates...
with oligosaccharidic haptens, preparation of, as vaccine against gram-pos.
and gram-neg. bacterial infection

10/7/57 (Item 36 from file: 399)
DIALOG(R)File 399:CA SEARCH(R)
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104205102 CA: 104(23)205102x JOURNAL

A molecular model of artificial glycoprotein with predetermined multiple immunodeterminants for gram-positive and gram-negative encapsulated bacteria

AUTHOR(S): Porro, Massimo; Costantino, Paolo; Giovannoni, Franco; Pellegrini, Vittoria; Tagliaferri, Lucia; Vannozzi, Francesca; Viti, Stefano

LOCATION: Bact. Vaccine Dep., Sclavo SpA, 53100, Siena, Italy

JOURNAL: Mol. Immunol. DATE: 1986 VOLUME: 23 NUMBER: 4 PAGES: 385-91

CODEN: MOIMD5 ISSN: 0161-5890 LANGUAGE: English

SECTION:

CA215002 Immunochemistry

CA210XXX MICROBIAL, ALGAL, AND FUNGAL BIOCHEMISTRY

IDENTIFIERS: oligosaccharide protein conjugate bacteria multivalent immunogenicity

DESCRIPTORS:

Antigens... Glycoproteins...

bacterial oligosaccharide-protein CRM 197 conjugate as synthetic, multivalent immunogenicity of, vaccines in relation to

Vaccines...

bacterial oligosaccharide-protein CRM 197 conjugates as, multivalent determinants of

Proteins, CRM 197...

conjugate with Neisseria meningitidis and Streptococcus pneumoniae oligosaccharides, multivalent immunogenicity of, vaccines in relation to

Oligosaccharides...

of Neisseria meningitidis and Streptococcus pneumoniae, conjugates with protein CRM 197, multivalent immunogenicity of, vaccines in relation to

Capsule, microbial...

of Neisseria meningitidis and Streptococcus pneumoniae, oligosaccharides of, conjugates with protein CRM 197, multivalent immunogenicity of, vaccines in relation to

Streptococcus pneumoniae...

oligosaccharides of Neisseria meningitidis and, conjugates with protein CRM 197, multivalent immunogenicity of, vaccines in relation to

Neisseria meningitidis...

oligosaccharides of Streptococcus pneumoniae and, conjugates with protein CRM 197, multivalent immunogenicity of, vaccines in relation to

Toxins, diphtheria...

protein CRM 197 related to, bacterial oligosaccharides conjugates with, multivalent immunogenicity of, vaccines in relation to

? ds

Set	File	Items	Description
	155	72	
	347	1	
	144	24	
	35	0	
	5	38	
	74	5	
	71	30	
	357	10	
	6	0	
	351	48	
	24	29	
	136	0	
	399	6	
	315	0	
	73	77	
	34	64	
	434	0	
S1		404	W135 AND (MENINGOCOCCAL OR MENINGITIDIS OR NEISSERIA)

AND CONJUGATE

	155	72	
	347	1	
	144	3	
	35	0	
	5	10	
	74	1	
	71	1	
	357	10	
	6	0	
	351	48	
	24	2	
	136	0	
	399	1	
	315	0	
	73	6	
	34	22	
	434	0	
S2		177	RD S1 (unique items)
	155	20	
	347	0	
	144	0	
	35	0	
	5	3	
	74	0	
	71	0	
	357	1	
	6	0	
	351	1	
	24	1	
	136	0	
	399	0	
	315	0	
	73	2	
	34	7	
	434	0	
S3		35	S2 NOT PY>2003
	155	20	
	347	0	
	144	0	
	35	0	
	5	3	
	74	0	
	71	0	
	357	1	
	6	0	
	351	1	
	24	1	
	136	0	
	399	0	
	315	0	
	73	2	
	34	7	
	434	0	
S4		35	RD S3 (unique items)
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	

	357	0	
	6	0	
	351	0	
	24	0	
	136	0	
	399	0	
	315	0	
	73	0	
	34	0	
	434	0	
S5		0	AU='COSTANTINO, PAOLA' AND AU='COSTANTINO, PAOLO'
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	12	
	24	7	
	136	0	
	399	39	
	315	0	
	73	0	
	34	0	
	434	0	
S6		58	AU='BERTI, FRANCESCA' OR AU='BERTI, FRANCESCO'
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	13	
	24	8	
	136	0	
	399	89	
	315	0	
	73	0	
	34	0	
	434	0	
S7		110	AU='COSTANTINO, PAOLA' OR AU='COSTANTINO, PAOLO'
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	19	
	24	13	
	136	0	
	399	113	
	315	0	
	73	0	

	34	0	
	434	0	
S8		145	S6 OR S7
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	17	
	24	4	
	136	0	
	399	40	
	315	0	
	73	0	
	34	0	
	434	0	
S9		61	S8 AND (CAPSULAR OR POLYSACCHARIDE OR NEISSERIA OR M-ENINGITIDIS)
	155	0	
	347	0	
	144	0	
	35	0	
	5	0	
	74	0	
	71	0	
	357	0	
	6	0	
	351	17	
	24	4	
	136	0	
	399	36	
	315	0	
	73	0	
	34	0	
	434	0	
S10		57	RD S9 (unique items)
?			

---Logging off of Dialog---

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19apr11 12:45:31 User226352 Session D1308.2
$1.98 Estimated cost File155
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$4.83 Estimated cost File71
$4.78 Estimated cost File357
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$433.97 Estimated cost File351
$14.22 Estimated cost File24
$0.46 Estimated cost File136
$128.54 Estimated cost File399
$0.67 Estimated cost File315
$12.97 Estimated cost File73

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\$28.92 Estimated cost File34
\$2.40 Estimated cost File434
OneSearch, 17 files, 11.852 DialUnits FileOS
\$3.22 TELNET
\$649.54 Estimated cost this search
\$649.59 Estimated total session cost 12.115 DialUnits
Logoff: level 05.31.00 D 12:45:31